

THIRTY-FIRST ANNUAL REPORT
OF THE
BOARD OF TRUSTEES

OF THE 52

CLEMSON
AGRICULTURAL
COLLEGE

TO THE

General Assembly of South Carolina

1920



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1920-23

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LETTER OF TRANSMITTAL

To the General Assembly of South Carolina.

Gentlemen:

As required by law I transmit herewith the Annual Report of the Board of Trustees of the Clemson Agricultural College of South Carolina for the fiscal year 1919-20.

During the period covered by this report all previous records for attendance were exceeded and the graduating class was the largest in the history of the College.

In March a serious disciplinary disturbance took place, the Freshman and Sophomore classes leaving the institution in a body. The Board of Trustees made a careful investigation of this matter and its findings, already made public, are incorporated in this report.

The Board feels that it solved a difficult situation to the general satisfaction of the citizenship of the State and the patrons of the College and at the same time preserved the dignity of the Board, the authority of officers of the College and the discipline of the student body.

The fine spirit of cooperation in the student body and the general contentment so manifest this session, as well as the return of 95.5 percent of the eligible students of last session evidences that a serious situation was successfully and wisely disposed of.

The Board reaffirms its confidence in the President and Commandant, so forcefully expressed in its published findings and assures these officers of its hearty and continued support in the just administration of the discipline and affairs of the institution.

The attention of the General Assembly is especially invited to that part of the President's report (page 51) dealing with the financial outlook.

Clemson's chief support is the balance of the fertilizer tax over and above the cost of inspection and analysis. The total of all other funds independent of this source for collegiate purposes, totals less than \$50,000.00. The institution receives no appropriations from the Legislature for its collegiate activities. Only appropriations for public service such as tick eradication, live stock sanitary work, etc., is made.

During the past ten years the gross fertilizer tax receipts have averaged \$237,653.90. Upon this basis the Trustees have developed the College. In normal times the above figure would meet collegiate operating expenses, but with no margin for buildings or other extensive developments.

However, during the past five years the cost of making the inspection and analysis has nearly doubled, reducing ma-

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terially the balance upon which the college depends. Salaries have been increased during the past five years an aggregate of about 22 percent, but the cost of labor, coal, supplies, and all laboratory materials and equipment have doubled and trebled.

Only maximum receipts from the fertilizer tax—last fiscal year \$313,000.00—have enabled the College to continue operation in the face of these greatly increased costs.

The financial prospects for 1921 are very disquieting. The sale of commercial fertilizers in South Carolina will probably be cut not less than fifty percent from the 1920 figure. The cost of making the inspection and analysis will remain practically the same as if the receipts were normal.

In that case it will be impossible to keep the college going until the General Assembly meets again in 1922.

In 1916 when the fertilizer tax had dropped from \$276,000 to \$155,000 we came to you and asked authority to negotiate a loan of \$62,400. This request was granted and even at the sacrifice of many things at the College needful to be done, the loan—principal and interest—has been repaid in full.

We cannot promise or predict continuous operation of Clemson College for 1921 unless the Legislature again comes to its rescue. Under conditons existing in the State the College does not ask for an appropriation but for authority again to negotiate such loan as may be necessary to keep the college going during 1921, the amounts borrowed to be repaid as soon as the fertilizer tax resumes normal proportions.

It will not be practical to reduce materially the budget of operating expense for this fiscal year now half over.

The budget for 1920-21 shown on page 55 of the President's report contains no large items of equipment that could be left off. College salaries (increased only about 22 percent during the last few years) cannot be reduced without serious disorganization and loss at the most vital point. The cost of supplies not already contracted for will be somewhat reduced but the aggregate saving for the rest of the session cannot be large.

With the present financial outlook constituting as it does a real emergency, the Board of Trustees, administiring a great public service indispensable to an agricultural state, regards it as a solemn duty to place the situation clearly and frankly before you, with the conviction that you will take such action as seems to you wise and expenient to insure the uninterrupted service of the College to the State.

Very respectfully submitted,
ALAN JOHNSTONE,

President Board of Trustees.

Dec. 31, 1920.

REPORT OF THE PRESIDENT OF THE COLLEGE

Covering the Fiscal Year July 1, 1919--June 30, 1920

Clemson College, S. C.,

December 1, 1920.

From W. M. Riggs, President of Clemson Agricultural College
To Mr. Alan Johnstone, President of the Board of Trustees
of the Clemson Agricultural College.

Dear Sir:

I have the honor to submit herewith the President's annual report covering the twenty-seventh session of the Clemson Agricultural College. The report covers the fiscal year from July 1, 1919 to June 30, 1920, and is intended for your thirty-first annual report to the Legislature.

I have arranged the report in six main divisions as follows:

1. A GENERAL STATEMENT.
2. A FISCAL STATEMENT.
3. THE COLLEGIATE WORK AND ORGANIZATION.
4. THE PUBLIC SERVICE.
5. THE STUDENT AFFAIRS.
6. THE PRESENT SESSION, 1920-1921.

PART I. A GENERAL STATEMENT.

THE SESSION OF 1919-20:

We looked forward to the session of 1919-20 with much interest and some anxiety. No one could predict just what effect the war and the disturbed conditions that followed it would have upon our attendance and upon the quality and psychology of the students who did attend.

So far as attendance was concerned our apprehensions were early set to rest. The demand for admission was greater than ever before. Many upper classmen who had been out of college for several years in the military service, returned to take up their work where they had laid it down. As a result our sessional enrollment was the largest in the history of Clemson, and the Senior Class of 147 topped by twenty-seven men the previous record-class of 1916.

In the student body there were approximately 300 men who had been in service in one capacity or another. Quite a number of these had seen overseas service, and quite a number had held commissions. It was perhaps not unnatural that to these ex-soldiers and officers the routine of cadet life seemed irksome.

From the very beginning of the session the mass-psychology of the student body was unsatisfactory. It had been so the session before, and during the spring of 1919, while I was in France, an open rebellion against the military discipline under Capt. McFeely was barely escaped. This session there was a general spirit of unrest, suspicion, and discontent in the attitude of the corps, which culminated in the walk-out of the Freshman and Sophomore classes on March 10th.

The Board at the request of the President assembled at the college on March 13th to 15th, and made a full investigation of this affair. Their findings, which appeared at the time in the public press, are attached to and made a part of this report. The stenographic records are on file at the college.

All of the Juniors and Seniors who were away on leave, save one, returned and complied with conditions laid down by the

Board as precedent to being allowed to continue in college, and out of the entire Freshman and Sophomore Classes, only thirteen failed to sign the renunciation and pledge which the Board required.

Following upon the heels of the investigation of March 13th, the President and the Commandant requested a full investigation of their administration of affairs, and this was held by the Board completely vindicating the President and the Commandant, completely vindicating the President and the Commandant, are made an appendix to this report.

The session of 1919-20—long to be remembered by all who had any responsibility for the maintenance of discipline and the preservation of the college—ended with a calm of good behavior profound in contrast with the turbulent days of March and April..

PERMANENT ADDITIONS TO COLLEGE PLANT:

There has been no substantial addition to the college plant during the last four or five years, during which time the operating expenses have so greatly increased as to leave no margin with which to build and expand.

During the year under consideration, the new filter plant was completed. A hog barn and calf barn and a fifty-foot addition to the engineering building were nearly, though not quite, completed.

With a part of the appropriation made for Agricultural Research, 300 acres adjoining the Coast Station were purchased from the Southern Railway at \$20.00 per acre for the purpose of carrying on an experiment in beef cattle raising. It is hoped through this experiment to make profitable millions of acres in the boll weevil section which have hitherto been of little value.

INVENTORY:

Our inventory as submitted to the Governor gives the following values:

Report of the Board of Trustees

INVENTORY SUMMARY

CLEMSON AGRICULTURAL COLLEGE

JUNE 30, 1920.

ALL DEPARTMENTS

No.	Classification	Cost Value	Est. Present Value
I.—	Office Equipment -----	\$ 31,928.49	\$ 33,187.94
II.—	Household Equipment -----	43,598.29	43,733.11
III.—	Educational & Recrea'l Equip. -----	140,763.54	174,176.17
IV.—	Library Equipment -----	43,885.87	43,639.57
V.—	Vehicles -----	23,614.73	20,421.48
VI.—	Live Stock -----	21,437.72	52,951.00
VII.—	Medical and Surgical Equip.-	1,485.55	1,177.99
VIII.—	Military Equipment -----	3,426.66	3,322.71
IX.—	General Plant -----	167,020.19	186,024.25
X.—	Buildings -----	762,145.54	1,337,749.00
XI.—	Real Estate -----	79,882.00	393,489.00
	Equipment Totals -----	\$1,319,188.58	\$2,289,872.22
XII.—	Supplies -----	79,264.90	85,201.80
	TOTALS -----	\$1,398,453.48	\$2,375,074.02

INSPECTIONS AND VISITATIONS:

Board of Visitors:

Under Section 17 of the By-laws, the Board of Trustees elects each year a Board of Visitors composed of one prominent citizen from each Congressional District. For the fiscal year covered by this report, the following Board was elected:

1st District—W. W. Smoak -----	Walterboro
2nd District—H. N. Cassells -----	Ellenton
3rd District—T. F. Watkins -----	Anderson
4th District—Geo. A. Buist -----	Greenville
5th District—M. L. Smith -----	Camden
6th District—E. P. Miller -----	Bennettsville
7th District—B. Hart Moss -----	Orangeburg

This Board visited the college on May 5th and 6th, and made a thorough and systematic inspection of all phases of the college life and operation. Because of the events of the March previous, they gave particular attention to the inspection of the cadet mess and other cadet interests. In their inspections of barracks, messhall, etc., they were accompanied by the cadet editors of the three college publications. The following is quoted from the report of the Board:

"In the first place, we wish to report that the splendid physical condition of the cadet corps was so obvious from their appearance that our subsequent investigation of the records on this matter was hardly necessary, and but merely verified what we were sure was the case, that the health of the students is as fine as could be in so large a body. This is not surprising in view of the setting-up exercises, regular life, and other benefits of your military discipline and drill, when coupled with the sanitary conditions, water supply, and supply and preparation of food. We were satisfied and cheerfully report that we do not see how the quality and preparation of the food could be better except at enormously greater and unreasonable expense. In our opinion there is no necessity or reason for serving better or more food than was being served at the time of our inspection. Our inquiries at random among the student body and directly with the representatives that we talked freely with on several occasions convinced us that the food then being served was typical of the food that had been served all spring.

"We report further that in our opinion the plant is being run at as high a degree of efficiency as is obtained in any business or other organization that we are acquainted with, and that the State is getting the maximum amount of results for every dollar invested in this great plant. We congratulate the State of South Carolina on the great asset it has in Clemson College and the educators connected with it, and only wish that the State and the tax payers of the State were more fully informed of the character and extent of the facilities it offers to the students and to the people of the State, and take even greater advantage than is being taken of these splendid facilities and the services rendered by those entrusted with the administration of the college teaching and college work."

The full report of the Board of Visitors is made an exhibit and attached to this report.

Inspections by the War Department:

One of the War Department's inspectors visited the college in the fall, and the following comments appeared in the inspector's report to the officer in charge of the District:

"(a) The present routine administration used here was organized by Col. Cummins and I consider it excellent.

(b) Military courtesy—very good. Every cadet salutes and salutes properly.

(c) The barracks were inspected and every room was found to be arranged exactly alike and very neatly arranged. I believe they cannot be surpassed by those of any other school in this district. This school shows promise of being a strong competitor of the distinguished colleges in this district."

We have not yet received the report of the spring inspection. However I regret to say that by the time the spring inspection came around our disciplinary troubles of March had put us out of competition for a place on the distinguished list.

LEGISLATION:

The General Assembly showed the same friendly spirit towards the college that it has always evidenced. The only appropriations requested were those for regulatory and other public lines of service. The following appropriations were made:

Extension Service -----	\$ 81,070.00
Tick Eradication -----	20,000.00
Live Stock Sanitary Work -----	30,000.00
Crop Pest and Diseases -----	10,000.00
Agricultural Research Work -----	25,000.00
Slaughter of Diseased Animals -----	2,000.00
<i>Total</i> -----	<u>\$168,070.00</u>

A commission to revise the laws governing the fertilizer inspection and analysis was appointed by Governor Manning in 1917.

Governor Cooper reappointed the commission with the following personnel:

Senator W. P. Baskin, Chairman, Representatives B. W. Se-

gars and R. M. Cooper, representing the farmers; J. Ross Hanahan, representing the manufacturers; R. I. Manning Secretary of the Clemson College Board of Control; T. P. Cothran, Speaker of the House; Senator D. D. McColl, and W. C. McLain, attorneys.

The commission made its report to the General Assembly in February 1920. Their recommendations were enacted into law, and this results in a great improvement in the code under which the fertilizer inspection and analysis is carried on.

Dr. R. N. Brackett, Chief Chemist, Mr. H. M. Stackhouse, Secretary of the Board of Fertilizer Control, and President W. M. Riggs acted in an advisory capacity to the commission.

BOARD OF TRUSTEES:

The vacancy in the life membership caused by the death of Senator B. R. Tillman on July 3, 1918, remains unfilled.

The Board held its three regular annual meetings in December, April and July, and two called meetings, one in September to consider the award of scholarships, and another on March 13th to consider the walk-out of the Freshman and Sophomore Classes.

CHANGES IN THE REGULATIONS AND BY-LAWS OF THE COLLEGE:

At the meeting of the Board on June 30 just at the close of the fiscal year, a substantial revision of the College By-laws was made. Also, a special committee which had been at work on the Cadet Regulations brought in their report at this meeting, which report was unanimously adopted by the Board. Copy of the By-laws and of the Rules and Regulations can be obtained from the President's Office, Clemson College, upon request.

PART II. A FISCAL STATEMENT.

The Treasurer's annual report, which is published as a separate volume, gives the fullest information in regard to the expenditure of all college funds—even to a listing of all bills paid. The following is a condensed statement of receipts and disbursements:

RESOURCES

(Available for College Purposes)

INCOME:

Privilege Fertilizer Tax -----	\$313,472.54 ✓
Interest on Clemson Bequest -----	3,512.36 ✓
Interest on Landscript -----	5,754.00 ✓
Morrill & Nelson Fund (U. S.) -----	25,000.00 ✓
Tuition from Cadets -----	17,472.83 ✓
Sales, Interests, Rents, etc. -----	23,210.84 ✓
<i>Total</i> -----	<u>\$388,422.57</u>

EXPENDITURES

COLLEGE OPERATING EXPENSES:

Salaries, labor, coal, materials, etc.---	\$214,470.51
Equipment for teaching -----	10,672.08
Improvements and additions to plant	32,774.08
Building Sinking Fund for hospital and tile floor in messhall -----	55,457.80—\$313,374.47

PUBLIC SERVICE COSTS:

Fertilizer inspection and analysis ---\$	41,696.00
Scholarships and advertisements ----	13,151.32
Pee Dee Experiment Station -----	3,832.58
Coast Experiment Station -----	2,973.35
S. C. Experiment Station -----	2,671.84
Crop Pest Commission -----	4,329.88
Veterinary Inspection -----	5,100.55
Miscellaneous Public Service -----	1,292.58— 75,048.10
<i>Total of above</i> -----	<u>\$388,422.57</u>

During the last few years the operating expenses of the college have very materially increased. In 1918-19, operating expenses were \$165,438.01 as compared with \$214,470.51 shown above. This increase was brought about through the doubling in the cost of coal, labor and all laboratory and shop materials, and salary increases of about 22%.

PUBLIC SERVICE:

As shown later under appropriate headings, the college handles a great deal of money for regulatory, research and extension service, amounting to a total of \$603,365.10. However, all of this money is appropriated under federal and state acts, which restrict its use. None of it is available for any collegiate purpose.

CADET FUNDS:

Likewise the money received from cadets for their board, laundry, uniforms and other living expenses is held in trust by the college and administered solely for the benefit of the students. Only the tuition charge and laboratory fee become a part of the college income. The total of the expenditures under the Cadet Fund amounted this fiscal year (1919-20) to \$255,456.56. The receipts were \$248,799.23.

REVOLVING ACCOUNTS:

Also, the college has a large number of open accounts not supported by state, college or other appropriations. These are simply revolving accounts, representing no income whatever to the college. In these accounts the receipts from sales of produce, etc., was \$180,873.14, and expenditures \$239,098.18. The book deficit indicated by the above figures is partly or wholly offset by increased inventory values in the shape of live stock, food stuffs on hand, etc.

RESERVE:

During the first six months of the fiscal year, July 1st to December 31st, the college receives very little revenue from the fertilizer tax—sometimes not enough to pay the cost of

inspection or analysis. It is therefore necessary to reserve sufficient funds from the previous year to carry the college over this "dry" period. The college entered on this fiscal year July 1st 1919 with a reserve of \$154,413.00. This in no sense represents a balance but merely a protective fund held back in spite of many needs which would easily have absorbed it.

SUMMARY:

The following condensed statement shows the entire monies handled during the fiscal year 1919-20 and gives an index to the magnitude and many-sidedness of the Clemson College activities.

CLASSIFIED SUMMARY OF EXPENDITURES

1919-20.

1. For Collegiate Purposes -----	\$240,702.44
2. For Public Service -----	603,365.10*
3. Revolving College Accounts -----	245,667.34
4. Cadet Funds -----	255,456.56
	<hr/>
	\$1,345,191.44†

* Of this amount \$110,268.86 is paid out by the Treasurer of the United States and \$97,381.38 by County Treasurers, on bills approved by Director of Extension and State Veterinarian.

† In addition to this the college treasurer handled cadet deposits to the amount of \$77,556.62.

AUDIT:

The books and accounts of the Treasurer's office are audited annually by the State Bank Examiner's office. His audit is appended to this report. His testimony to the accuracy and excellence of the Treasurer's work is that of every auditor who has had an opportunity to inspect this well kept office.

RECEIPTS FROM TUITION:

The following is a statement of the receipts from tuition. The activities of the State Board of Public Welfare began in 1916.

Tuition from Students

1913-14	-----	\$ 4,850.00
1914-15	-----	5,233.00
1915-16	-----	4,670.00
1916-17	-----	14,243.55
1917-18	-----	14,590.00
1918-19	-----	13,575.73
1919-20	-----	17,472.83

An act passed by the 1920 General Assembly exempting from tuition all students who had served during the World War will likely considerably reduce the tuition receipts for 1920-21.

PART III. COLLEGIATE WORK AND ORGANIZATION.

SUPPORT:

As stated in a previous chapter, the college work is supported almost entirely from the balance which remains from the fertilizer tax after the cost of the inspection and analysis has been deducted. For the fiscal year 1919-20, the total expenditures for what might be termed "collegiate work" were as follows:

For salaries, labor, insurance, coal, shop and laboratory, work, etc.	-----	\$217,470.51
For teaching equipment and minor improvements and additions to plant	-----	43,446.16
For buildings (sinking fund)	-----	55,457.80
<i>Total</i>	-----	<u>\$313,374.47</u>

The remainder of the college resources amounting to \$75,048.10 were expended for fertilizer inspection and analysis, branch stations, scholarships and other lines of public service.

ENROLLMENT:

The total enrollment for 1919-20 was 1014 distributed as follows:

(a) *In College Courses:*

Seniors	-----	147
Juniors	-----	137

Sophomores	-----	211
Freshmen	-----	291—786

(b) <i>In Special Classes:</i>		
One Year Agricultural	-----	35
Specials and Irregulars	-----	10
Federal Board students not in college classes	-----	55—100

Regular Session	-----	886
(c) <i>Summer School Students</i>	-----	128

Total	-----	1,014

The 886 students enrolled during the regular session of the college were distributed by courses as follows:

In Agriculture	-----	436
In Engineering	-----	334
In Textile Industry	-----	76
In Chemistry	-----	26
In Architecture	-----	14—886

The Federal Board for Vocational Education sent in all 61 disabled soldiers to the college for training. Of these, 6 were in the regular college classes, 2 in the regular one year agricultural course, and 53 in special vocational courses.

VITAL STATISTICS:

The following is compiled from information furnished by 692 students in April, 1920:

1. Average age	-----	19 yrs., 2 mos.
2. Average height	-----	5 ft., 7 in.
3. Blonds	301; brunetts	----- 391
4. From country	-----	41.7%
5. From villages (under 500)	-----	10.6%
6. From towns (500—2,500)	-----	16.5%—68.8%
7. From cities (over 2,500)	-----	31.2%
8. Born in country	-----	58.2%

Occupation of Parents

9. Farmers	-----	52.5%
10. Merchants	-----	11.9%
11. Clerks	-----	1.8%
12. Lawyers, doctors and preachers	-----	4.4%
13. Mechanics, etc.	-----	3.2%
14. Unclassified	-----	26.2%

GRADUATES:

On Commencement Day, June 8th, diplomas were awarded to the largest graduating class in the history of the college. At the opening of the College in September, the Senior Class numbered 147 men. Of this number, 141 graduated in the following courses:

In Agriculture -----	80
In Mech. and Elec. Engineering -----	37
In Textile Industry -----	5
In Chemistry -----	7
In Civil Engineering -----	9
In Architecture -----	3—141

Of the graduating class as a whole, 55.7% were in Agriculture. This is probably the largest percent. of graduates at any Land Grant college in the nation where there is a choice between agriculture and other subjects.

ONE YEAR AGRICULTURAL COURSE:

On May 27th, certificates were awarded to 20 men who satisfactorily completed the one year course in Agriculture. The total enrollment in this course for the session was 35.

CERTIFICATES OF MERIT:

Certificates for distinguished agricultural service were awarded to Mr. B. S. Hodges of Hodges for his work with leguminous crops, and to Mr. W. W. Wannamaker, Jr., of St. Matthews, for his work in plant breeding. Since the award of these certificates was instituted in 1914-15, the following citizens of the State have received them:

<i>Session</i>	<i>Name</i>	<i>Address</i>
1915-----	McIver Williamson -----	Darlington
	W. G. Hinson -----	James Island
1916-----	David R. Coker -----	Hartsville
	J. C. Stribling -----	Pendleton
1917-----	J. C. C. Brunson -----	Florence
	R. B. Watson -----	Ridge Spring
1918-----	J. A. Shanklin -----	Columbia
	W. P. Harris -----	Owings

1919-----	J. W. Geraty -----	Youngs Island
	D. C. Heyward -----	Columbia
1920-----	B. S. Hodges -----	Hodges
	W. W. Wannamaker, Jr. ---	St. Matthews

SUMMER SCHOOL:

The fifth summer school extended from July 1st to August 9th. The enrollment reached a total of 128 students, distributed as follows:

Cotton graders -----	10
Teachers of Agriculture -----	60
Corn Club Boys -----	56
Miscellaneous -----	2
Total -----	128

SCHOLARSHIPS:

There were in effect 96 regular four-year county scholarships and 14 from the State-at-large. Only 18 of the One Year Agricultural Scholarships were filled. Of the above scholarships, 71.8% were held by farmers' sons, and 28.2% by the sons of merchants and professional men, which is hardly more than the percent of students who are taking textile rather than agricultural scholarships as permitted by law.

Scholarships are not now as eagerly sought as heretofore, because of the careful examination by the State Board of Public Welfare into the ability of parents whose sons are seeking scholarships. Then too, during the year covered by this report, our people have been so prosperous that the \$100.00 and free tuition offered as a scholarship prize was not considered worth the striving for. It is generally the case that scholarships are more eagerly sought in hard times than in prosperous times.

EDUCATION OF DISABLED SOLDIERS:

With the opening of this session, the Federal Board for Vocational Education entered into a contract with the college to train disabled soldiers, principally in agriculture and textile industry. We agreed to take only South Carolina men,

because of the act of the Legislature which requires us first to provide for our own, and every disabled soldier who goes into barracks displaces some able-bodied young South Carolinian who might otherwise come. The government pays tuition and all regular fees, and supplies the men with needed books and equipment. For special instruction, the college is allowed \$25.00 per month for the first twenty-five men, and \$20.00 per month for all above that number. The preparation of these men runs from illiteracy up and approximates on the average five or six school grades. Some are able to enter the regular college classes, but there are only a few such, and the remainder have to be taught as would be children in school.

Rev. J. M. Stoney was appointed to have general charge of this phase of the work, and he has proven a most satisfactory man.

The problem of training these soldiers is one hedged about with special difficulties. They are of all ages, married and single, and with varying physical infirmities. They are of all grades socially and intellectually. They enter college at irregular times. They want special course, and most of them want to live out of barracks. We have made it plain to these soldier students that they will be required to apply themselves diligently to their work and not remain at college merely for the salary which the government pays them while being educated. So far we are encouraged to believe that we will be able to do something of real value for these wounded men.

THE RESERVE OFFICERS' TRAINING COURSE:

The Student Army Training Corps, which replaced the R. O. T. C. during war times, disappeared soon after the signing of the armistice,—much to the relief of all colleges concerned. It was succeeded by a return to the R. O. T. C. plan, which offers not only the opportunity for service to the nation, but affords substantial help to the student body as a whole, and in particular to those Juniors and Seniors who elect to take the advanced course.

Under the Morrill Act establishing the Land Grant Colleges and rulings of the War Department, Land Grant Col-

leges are required to give three hours per week of military instruction for at least two years. Our curriculum requires that the three hours of instruction be continued through the Junior and Senior classes. At the beginning of the Junior year, students who desire to take what is called the Advanced Course, R. O. T. C., involving two extra hours of theoretical military work may do so if physically fit and acceptable to the President and the Commandant. Students in the advanced course receive not only a commutation for uniforms which averages about \$9.16 per annum, but in addition receive a substantial commutation for subsistence. This amounted to 40c per day during the session covered by this report, but has been increased to 53c per day for the session 1920-21. In effect, students in the advanced course of the R. O. T. C. get a scholarship which is now worth approximately \$225.00 per year for two years.

The students in the Freshman and Sophomore classes get the same commutation for uniforms which is allowed to the students in the advanced courses.

Students who do not elect to take the advanced course, which entails the two hours of extra military instruction, are required to take instead of this two hours, Psychology, Business Law, or some other elective.

The total enrollment in the R. O. T. C. during the session was 220 Juniors and Seniors in the advanced course, and 458 Freshmen and Sophomores, a total of 678, or about 84% of the entire corps, after deducting the one year agricultural students and the Federal Board students, none of whom under the government rulings would be eligible.

THE FACULTY:

The work of the Faculty during the session was up to the usual standard. The loyalty of the Faculty as a body during the troublous times in March was most gratifying to me, as it must be also to the Board of Trustees. The staunch support of the Directors and the resolutions of confidence unanimously adopted by the Faculty were most highly appreciated.

Because of the rapid rise in the cost of living, a bonus of

12% was added to the salaries of all teachers and officers at the end of the year, June 30, 1920., and a complete revision of the salary scale made to carry with it as much or more than the 12% for the future. During the last three years, and including the last increase the salaries of the Faculty have been increased about 22%, and at present compare favorably with other southern colleges.

The increases in salary made by the Board at the April meeting I believe gave general satisfaction, but during the days of competition for men and continually advancing salaries, the problem of holding a faculty together was a most serious one. The spectacle of enormous salaries paid to mechanics and other skilled workers, and princely salaries paid professional men in business lines, made even a reasonable college salary look insignificant. It is to be hoped that with the return to normal times the present salaries may be maintained and grow in value with the greater purchasing power of the dollar.

REVIEW OF DEPARTMENTS:

The unit of organization at Clemson College is the subject-matter division—such as Mathematics, Architecture, Botany, Biology, Electrical Engineering, etc. These divisions are grouped into seven departments as follows:

Agricultural; Academic; Chemistry; Engineering; Military; Textile; and at the July 1920 meeting, the new Department of Student Affairs was added.

Several divisions, such as the Library, Treasurer's office, Contruction and Repairs, etc., are not grouped into departments, but are directly under the President.

The following are the Directors of the above Departments:

Agricultural Department—

(a) Resident Teaching	Dr. F. H. H. Calhoun
(b) Agricultural Research	Prof. H. W. Barre
(c) Extension Service	Prof. W. W. Long
Academic Department	Dr. D. W. Daniel
Chemistry Department	Dr. R. N. Brackett
Engineering Department	Prof. S. B. Earle
Military Department	Lt. Col. J. M. Cummins
Textile Department	Prof. C. S. Doggett
Department of Student Affairs	Prof. D. H. Henry

Report of the Board of Trustees

In the following review of departments, it is not attempted to give all changes in personnel and details which have already been chronicled from time to time in my reports to your annual meetings. Only changes and facts of outstanding importance will be included.

Teaching work in all departments was handicapped by the general spirit of unrest and inattention which characterized the student body during the first and second terms. After the affair of March 10th which came at the end of the second term, a distinct improvement was noted, and during the third term the work of the students on the whole was fairly satisfactory. The students still seemed unable, as they had been for several years, to get down to hard work. Without exception, the Directors of Departments reported that the class work of the session taken as a whole was much below the average.

The Academic Department:

The Academic Department includes four divisions—English, Mathematics, Physics, History and Political Economy. This department is more directly related to the public school system of the State than are the purely technical departments. Upon the student's school preparation depends very largely his progress in the subjects taught by this department. I regret to say that the majority of our students are not well prepared in the two very important subjects given in all our courses—namely, Mathematics and English. Few high school students have any preparation whatever in Physics, Chemistry or Manual Training. As a result, a good deal of work which should be done in the schools has to be done during the Freshman year in the Academic Department.

The work of the Academic Department has steadily improved under the directorship of Dr. D. W. Daniel.

The resignation of Prof. T. G. Poats, for nearly a quarter of a century head of the Physics Division, is greatly regretted. Prof. Poats was an admirable teacher, and the type of man whose influence for good was felt by his students. Prof. Poats has been succeeded by Prof. W. E. Godfrey of Mercer University.

This is the only change of importance in the department; other changes including only teachers of subordinate rank.

The Agricultural Department—(Resident Teaching) :

The teaching work of the faculty of this department, in spite of the handicaps suffered thru change in personnel an inability in some cases to fill positions with properly trained men, has been quite satisfactory. During the first and second terms the psychology of the student body militated against the best results. During the last term, there was a great improvement in this respect.

The work of the department in Agricultural Education under Prof. Crandall and Prof. Barnett is especially worthy of mention. "Ten Seniors graduated in this work, and this group included some of the very ablest men in the class. No one is likely to enter this course unless he is thoroughly in earnest. I have very strongly the conviction that the greatest work the college can do is to train teachers, county agents and other missionaries of agriculture. Ten graduates going out to teach agriculture in our schools more nearly justifies the existence of the college than five times that number going out to engage in work for their individual benefit.

At present our teacher training work suffers from the lack of a local high school able to give the necessary practice training to our students. It is hoped that this need will be supplied another session by the Calhoun-Clemson school situated within easy reach of the college. Until that is done the schools at Pendleton and Seneca furnish the nearest facilities.

The regular college work of training agricultural teachers has been supplemented by our summer school, which in 1919 gave instruction to 60 teachers, and this summer to 47.

Under the stimulus of the Smith-Hughes Act the demand for teachers of agriculture in the school has been greater than the supply. In spite of the liberal salaries offered, equalling in many cases the salaries of college professors, young men have been disinclined to enter upon teaching as a profession. With a return to normal in business, perhaps this condition, so ominous to the future of education, will be improved.

During the year, Prof. C .C. Newman, the senior member of

our agricultural faculty, was away on a leave of absence, in the employ of the Combahee Company as Superintendent of their plantation in the rice field section of the state. He will return to the college with the opening of the session 1920-21. His position as Chief of the Horticultural Division was capably filled by Mr. G. P. Hoffmann, Extension Horticulturist.

The new head of the Division of Animal Husbandry, Prof. L. V. Starkey, has made rapid progress in building up the work of the division, especially with swine. Mr. F. G. Parham, President of the South Carolina Live Stock Association, in a letter to Director Barre praises very highly this phase of the college work. A small but up-to-date hog barn to cost approximately \$6,000 is under way and should be completed by January 1, 1921.

The Dairy Division has continued its steady progress in the development of a creditable dairy herd of Jerseys and Holsteins. The Guernsey breeders of the state have made a proposition to give to the college \$2,500 worth of Guernsey cattle if the college would appropriate a like amount. This proposition was accepted at the July 1920 meeting of your Board. During the year a small additional barn for the care of pure bred calves was begun and is nearing completion. Its cost will be about \$6,000.

The Chemistry Department (Teaching) :

This department is charged with the teaching of Chemistry and with the analysis of fertilizers, which latter phase will be discussed in the chapter on public service.

The total enrollment in Chemistry was 128 Freshmen, 200 Sophomores, 69 Juniors, 9 Seniors and 40 irregulars,—a total of 446. As usual, the work of teaching was well done by an efficient and earnest staff.

Our Chief Chemist, Dr. R. N. Brackett, was honored by being appointed "General Referee on Fertilizers" by the National Association of Official Agricultural Chemists, and Prof. J. H. Mitchell, a member of his staff, as "Referee on Plant Constituents", this being his second year in that office.

The Engineering Department:

During this session, and probably due to the influence of the war, there has been a distinct drift towards engineering. A larger percent. of Freshmen and Sophomores than for some years past are in the engineering courses, and a smaller percent in agriculture. The session of 1920-21, due to the past prosperous year in agriculture, shows a recovery and about an equal division of Freshmen.

During the year this department has lost one of its oldest division heads. During the summer of 1919, the U. S. Department of Agriculture offered Prof. S. T. Howard, head of the Machine Shop Division, an attractive position to assist in developing the machinery for applying boll weevil poison. As Prof. Howard was of an inventive turn of mind, we felt that it was a duty the college owed to agriculture to put no obstacles in the way of his accepting this opportunity to render a service that might be worth millions to southern farmers. Prof. Howard has for many years filled his position at Clemson with conspicuous ability and he will be greatly missed from the faculty of the Engineering Department. Prof. M. T. Birch was appointed to succeed Prof. Howard for the year covered by this report.

The fifty-foot addition to the main engineering building is nearing completion and will add greatly to the facilities of the Drawing and Wood Shop Divisions. The approximate cost of the addition is \$12,000.

The Military Department:

Capt. H. F. McFeely, U. S. A., Retired, was relieved of his detail at Clemson College during the summer of 1919 and Lt.-Col. J. M. Cummins was sent in his stead as Professor of Military Science and Tactics. By Trustee action, Col. Cummins was made also Commandant of Cadets. This is Col. Cummins' second detail at Clemson, Sept. 1, 1920. His first four-year detail from May 23, 1912 to February 17, 1916, is remembered by officers and cadets alike as a most satisfactory period in our military history.

Col. Cummins is a most efficient officer. In his dealings

with the cadets he is strict, but just and kindly, and he is keenly interested in everything that pertains to their welfare as well as in the mere maintenance of military discipline. The mutterings of a few last spring is not to be taken as indicative of the sentiment of the corps by whom Col. Cummins is deservedly held in the highest esteem. Five years of service in double harness with Col. Cummins leads me to state without reservation that he is one of the most loyal, devoted and efficient officers of the college,—one who can be depended upon in any emergency.

Much of the work of the Military Department is covered under the chapter on student affairs.

In regard to discipline, it will suffice to say at this point that taking the average of the three terms, 251 cadets had a perfect discipline record—no demerits—and 66% had less than twenty demerits, a standard entitling, so far as discipline is concerned, to a place on the honor roll.

The Commandant reports that individual discipline was good throughout the session, but that mass discipline soon after the opening of the session, was bad, until it culminated in the affair of March 10th. By the close of the session, mass discipline was better than at any time during the session.

As stated elsewhere, out of a total of 831 cadets in barracks, 17 were dismissed by the Discipline Committee and 11 suspended for one year or less.

The enrollment in the R. O. T. C. in September was as follows:

In Freshman and Sophomore Classes -----	458
In Junior and Senior Classes -----	220
<i>Total</i> -----	<u>678</u>

This is practically 80% of the corps of cadets. Of the 20% not in the R. O. T. C., some were not physically fit, and others were in short courses. A few preferred not to enroll.

During the session, the War Department detailed to the college for R. O. T. C. work the following:

Lt. Col. J. M. Cummins; Lt.-Col. Madison Pearson; Capt.

L. V. Durfee and several non-commissioned officers as drill instructors.

The college provided Major Andrew Bramlett as Associate Commandant, Mr. J. E. Oberg, Quartermaster, and Mrs. W. E. Godfrey, Clerk and Stenographer.

The Textile Department:

I am glad to report quite a revival of interest in the textile courses. There were enrolled in this department 5 Seniors, 13 Juniors, 30 Sophomores, 16 Freshmen and 9 irregular and special students, a total of 73, or about 9% of the total college enrollment. In addition to the above, 35 students in the One Year Agricultural Course were given instruction in cotton grading.

Because of the increased numbers, it was necessary to add another teacher to this department, and Mr. H. H. Willis of the class of 1917 was given a temporary appointment.

With the opening of the session, Prof. C. W. McSwain who had been away on a year's leave of absence during the S. A. T. C. session of 1918-19, returned to duty. Towards the close of the session, Prof. W. G. Blair resigned to enter the Bureau of Markets, U. S. Department of Agriculture.

On the whole, the outlook for this well equipped department is very encouraging. The work of instruction is excellent.

The Treasurer's Office:

The volume of work has so greatly increased in this office as to suggest the necessity of an additional assistant.

Ten years ago the total funds disbursed amounted to \$350,213.27; this year the total is \$1,242,037.64. Much of the money for public service now comes from federal government, necessitating the making of exhaustive and time-consuming reports.

As always, the work of the Treasurer, Mr. S. W. Evans, and his assistants, Mr. E. B. Elmore and Mr. C. M. Hall, has been of the highest order.

THE PUBLIC UTILITIES:

All public utilities have been hard-hit by the cost and scarcity of labor and the high cost of coal and all building materials.

The Construction and Repair Division is greatly behind in its schedule of repairs to residences and public buildings. The addition to the main engineering building, the calf barn and hog barn, aggregating in cost about \$23,000, have gone forward with incredible slowness and outrageous expense. Since these structures were begun about two years ago, common labor has increased from ten to thirty cents per hour, carpenters from twenty-five to sixty-five cents per hour, brick masons from twenty-five cents to \$1.25 per hour, brick from \$6.85 to \$23.10 per M., cement from \$3.05 to \$6.10 per barrel, and rough lumber from fifteen to forty-five dollars per M.

The cost of operating the *Heat, Light and Water Division* steadily increased with the cost of coal and labor until it now amounts to approximately \$37,000.00. The coal supply during the past year was very precarious. We were indeed fortunate to get through the session without interruption.

We have reached and at times almost exceeded the engine capacity of our station and by another year it will be necessary to install an additional engine and boiler at a cost of approximately \$20,000.

Our *Telephone* facilities are still inadequate, although somewhat improved. The Bell Telephone Co. has taken over this territory from the Oconee Telephone Co. and has promised to run a special line connecting us with their system either at Seneca or Pendleton. They have not yet carried out their promise, but base the delay upon inability to get the necessary materials.

The college is fortunate in having a *campus* equal in beauty to that of any college in the nation. It is a pity that money is lacking to properly develop it. Under the general supervision of the Horticultural Division, great improvement is to be expected in the arboricultural features. However, there is a lack of sufficient cement side walks and hard surface roads.

As a community, Clemson College suffers the disadvantage

of being neither city nor country—lacking the facilities and amusements which characterize the city, and the abundance of food and fuel which characterize the country. There are no adequate markets within walking distance. When times become normal and it is possible to get things done, and we have the money with which to do them, we should make it a policy not only to furnish the bare necessities of reasonable and comfortable living, but those comforts and conveniences which will make living at Clemson attractive as compared with other parts of the country. In this day of competition for the best men and women we will find ourself behind in the competition if we do not do everything we can looking to the comfort and content of our population.

The College Farm:

In January 1920 the college farm was transferred to the Experiment Station in order that the agricultural work done might have a research as well as a utilitarian value. The farm will raise on a cost basis the necessary feed stuffs for the dairy and animal husbandry divisions of the college and lend itself to experiments on a larger scale than is practicable on the limited lands of the present station. As heretofore, the farm will operate on a reinvestment basis, no appropriations being made for its support.

On January 31, the farm showed a balance of \$5,712.13, this representing the profits earned under the management of Prof. C. C. Newman.

PART IV. THE PUBLIC SERVICE.

The work of Clemson College is not confined to resident teaching. In fact an agricultural college is a great public service corporation, which must protect and serve the agricultural and industrial people of the State, as well as educate their sons.

The public work of the college includes regulatory work, such as is required under the law governing the movement of live stock, the control of contagious live stock diseases, the

protection of buyers against diseased nursery stock and against plant diseases and insect pests, and the inspection and analysis of commercial fertilizers. This public work also includes the diffusion of agricultural information to the farmers and country children, stimulation of the schools by the offer of competitive scholarships, assistance in the school building program of the Department of Education by furnishing plans, etc., and in general is an effort to carry the benefits of the college to the largest possible number of people.

The total budget of expenditures for public service nearly doubles the expenditures for the collegiate activities of the institution. The following statement shows the kinds of service performed and the sources from which the money comes. Out of a total of \$603,365.10 spent in behalf of the farmers of South Carolina, only \$110,507.90 came out of the coffers of the State.

EXPENDITURES FOR PUBLIC SERVICE. FISCAL YEAR 1919-1920.

No.	Kind of Service	From College Funds	From S. C. Appro'n	From U. S. Appropriat'n	From U. S. D. A. Appropriat'n	From Counties, Sales	Totals
1.	Agricultural Research -----	\$ 9,477.77	\$ 9,330.74*	\$ 30,000.00	\$-----	\$ 4,685.62	\$ 53,494.13
2.	Extension Service -----	-----	67,994.99	117,222.87	43,390.00	97,381.38	327,989.24†
3.	Live Stock Sanitary Work --	5,100.55	12,838.82	-----	11,078.71	-----	29,018.18
4.	Tick Eradication -----	-----	18,632.00‡	-----	55,800.15	-----	74,432.15
5.	Hog Cholera Serum -----	-----	-----	-----	-----	56,250.37	56,250.37
6.	Crop Pest Commission -----	4,329.88	1,711.35§	-----	-----	-----	6,041.23
7.	Fert. Inspection and Anal. --	41,696.00	-----	-----	-----	-----	41,696.00
8.	Miscellaneous -----	1,292.58	-----	-----	-----	-----	1,292.58
9.	Agric. and Tex. Scholarships	13,151.32	-----	-----	-----	-----	13,151.32
10.	Totals -----	\$75,048.10	\$110,507.90	\$147,222.87	\$110,268.86	\$158,317.37	\$603,365.10

† Of this total Winthrop used \$105,582.52 for Home Demonstration Work with Women.

* Appropriation for full calendar year, \$25,000.

§ Appropriation for full calendar year, \$10,000.00.

‡ Appropriation for full calendar year, \$20,000.00.

It will be noted that lines of service 1, 2, 3, and 4 are carried on in cooperation with U. S. Dept. of Agri.

AGRICULTURAL RESEARCH WORK:

Agricultural research is at the basis both of agricultural teaching and agricultural extension. One effect of the world war was to increase the public appreciation for research, whose value to the nation in the emergency was clearly demonstrated in concrete form. This public recognition has led to an increased demand for the services of the station, which demand the Agricultural Experiment Station has been unable to meet because of its lack of funds. With practically a fixed income from the Hatch & Adams Acts and the greatly increased cost of salaries and materials, it was not possible to maintain even pre-war programs. In this emergency the college appealed to the Legislature for assistance and an appropriation of \$25,000 was made to aid primarily with the research work carried on at the branch stations. But for this appropriation, the work during the past year would have suffered greatly and much of it would necessarily have been abandoned.

The agricultural research work is included within the scope of the S. C. Experiment Station, whose activities include:

1. The parent experiment station at the college, this station including the college farm.
2. The branch stations located at Florence and at Summer-ville.
3. Cooperative agricultural research carried on with individual farmers.

A full account of these activities is contained in the report of the Director of the Experiment Station which is appended to this report. With the advance of the boll weevil and the necessity of diversification for other reasons, there never was a time when agricultural research was more necessary than at present. It is to be hoped that the Legislature will realize this condition and appropriate \$50,000 at the 1921 session to carry out a full research program. This was the amount requested last session, but only half the full amount was appropriated.

THE EXTENSION SERVICE:

The total fund available for extension service as shown in the preceding tabulation was \$327,989.24. Of this amount \$43,340.00 was disbursed by the Treasurer of the United States, and \$97,381.38 by the county treasurers. Of the total for extension service, Winthrop College expended on Home Demonstration Work for Women \$105,582.52.

The terms of the Smith-Lever Act under which this work is organized is now too well known to need detailed exposition here. The following are its principal features:

1. Only a college receiving the benefits of the Land Grant Act of 1861 (the "Land Grant College") can be selected by the Legislature to administer the extension work provided for under the Act. (The Legislature in 1915 designated Clemson College to carry on this work.)

2. The funds arising under the Act cannot be used for educational work done at the college, but only for giving instruction and practical demonstrations in agriculture and home economics to persons *not attending the college*. (The college is merely the agent to administer the fund—not the beneficiary of it.)

3. For the maintenance of the work there is permanently appropriated \$480,000 per annum, or \$10,000 for each state which accepts the provisions of the Act. In addition, there is appropriated \$600,000 for the second fiscal year of operation, 1915-16, and for each year thereafter for several years, \$300,000 additional, until a total of \$4,100,000 is reached. This, with the \$480,000 makes a total of \$4,580,000 and continues as a permanent annual appropriation. Unlike the initial appropriation of \$480,000, the additional appropriations are not equally divided among the states, but are to be allotted annually to each state in the proportion which its rural population bears to the total rural population of the United States based on the last preceding census. *They are also conditioned upon provision of an equal sum for maintenance of the work.*

Based upon the 1910 census, South Carolina is entitled to 2.61 percent of the additional appropriation. South Carolina's share would be as follows:

From July 1st	Federal Appropriation	State Appropriation	Total
1914—1st year -----	\$ 10,000.00	\$ 00,000.00	\$ 10,000.00
1915—2nd year -----	25,691.15	15,691.15	41,382.30
1916—3rd year -----	38,767.11	28,767.11	67,534.22
1917—4th year -----	51,843.07	41,843.07	93,686.14
1918—5th year -----	64,919.03	54,919.03	119,838.06
1919—6th year -----	77,994.99	67,994.99	145,989.98
1920—7th year -----	91,070.95	81,070.95	172,141.90
1921—8th year -----	104,146.91	94,146.91	198,293.82
1922—9th year -----	117,222.87	107,222.87	224,445.74

4. The Act further provides that the extension work is to be carried on in a manner mutually agreed upon by the Secretary of Agriculture, acting through the States Relations Committee and the College. Before the Federal funds become available, plans for the work must be approved in Washington.

Organization:

The Agricultural Department, with its divisions of agronomy, animal husbandry, botany, dairying, entomology, horticulture, chemistry and veterinary science, is the machinery by which agricultural *research, extension and teaching* are all carried on. Each division is under a chief, who is responsible for the successful prosecution of the work in these three lines of service. Prof. W. W. Long is Director of Agricultural Extension Service; Prof. H. W. Barre of Agricultural Research; and Dr. F. H. H. Calhoun of Agricultural Teaching. In each division are grouped the specialists in that line—teachers, research and extension workers.

It is often suggested that the extension service ought to be located at some central point in the state. This view arises from a misapprehension of the nature of the extension service; for the extension service of the college represents a *service of the whole Agricultural Department, rather than a mere subdivision of it*. It means the extending of the benefits of the Agricultural Department of the college beyond the confines of the campus to the people of the state. To locate the office of extension service away from the college would necessitate duplicating the staff of specialists who now supervise *research and teaching as well as extension work*, and would ne-

cessitate duplicating equipment as well as men. The specialists at the college are in touch with the county agents in the field and are called upon for expert advice and for the making of tests which are germane to the demonstration work.

There is a tendency too to confuse the REGULATORY WORK with the EXTENSION SERVICE. Actually there is little—often no—connection between them. Our veterinary service, tick eradication, crop pest control, etc., *are in no sense parts of the extension service*. The one is primarily *regulatory* and the other is primarily *educational*. As a matter of fact, the Smith-Lever funds cannot be used for doing regulatory work.

In order to have a fair division of funds between the counties in the state, the Trustees some years ago adopted the following standing rule:

“That after deducting the portion that goes to Winthrop College under the memorandum of understanding between Clemson College and Winthrop College, and after paying overhead expenses and the cost of specialists, the remainder of the Smith-Lever Fund be apportioned equally to the support of county agents in all counties of the state in which the work is carried on.”

The greatest difficulty during the year has been in obtaining and holding competent county agents. The average salary paid has been \$1,965.00, with an allowance of \$400.00 for automobile travel. The cost of operating an automobile, including depreciation, is probably at least \$600.00 per year, and the agent is required to own his own car.

The competition with other states, particularly with North Carolina, has been very keen, and the only way in which good agents have been retained has been through the generous support of counties who valued their services. This must always be the solution of this phase of the problem.

Mr. W. W. Long, the Director of Extension, who was away from the college for a little over a year, on sick leave, returned to duty on December 10, 1919. I am sure the people of the state will join with the college in rejoicing at his return.

Mr. Long's admirable report covering the extension service for the year is appended hereto. Its reading must convince anyone of the immense value which the extension service has

been to South Carolina during the past year. So thoroughly is this service entrenched in the estimation of the people that the difficulty is to meet the many demands made upon agents and specialists. The money which the state puts into extension service is a real investment returning an hundred fold in actual values the cost of the work.

LIVE STOCK SANITARY WORK:

The live stock sanitary work includes the following lines:

1. Tick eradication.
2. Tuberculosis eradication.
3. Hog cholera control.
4. Investigation and control of contagious outbreaks.
5. Quarantine against introduction of diseased live stock.

The importance of the live stock sanitary work has steadily grown with the advance of the boll weevil. An important item in the program of diversified farming to meet boll weevil conditions must be the introduction of a certain amount of live stock work on every farm.

Gradually the live stock work has been in process of transfer to Columbia, and with the close of the fiscal year covered by this report, Dr. W. K. Lewis, who has been in charge of the Columbia office as Assistant Veterinarian, was made State Veterinarian, and hereafter all live stock sanitary work will be done under his supervision, and from the Columbia office.

Since the State's fiscal year extends from January 1st to the following December 31st, the State Veterinarian's report is made from January 1, 1919 up to November 1. Attention is directed to this fact because most of the other reports are for the college fiscal year, July 1st to the following June 30th.

The work of *tick eradication* was begun in South Carolina with college funds in 1907. Up to November 1, 1920, the following total expenditures were made for this work:

By the U. S. Department of Agriculture -----	\$429,412.47
By State appropriations -----	198,523.86
From Clemson College funds -----	54,104.00
From county contributions (1913) -----	1,083.00
<i>Total</i> -----	<u>\$683,123.33</u>

With this expenditure the entire state has been released from federal quarantine and the state cleared of cattle tick except in the following ten counties: Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Hampton, Horry, Jasper and Williamsburg. In most of these counties, free range conditions exist and but for this condition the work of clearing these counties would have been completed. Under free range conditions the only practical method of tick eradication is to drive up the cattle periodically and dip them. This process of clearing a given territory is one of infinite slowness and uncertainty.

The work of eradicating tuberculosis in dairy herds has been very successful. Since 1917 when this work was begun, 775 herds aggregating 18,135 cattle have been tested. Many other herds in South Carolina are in process of being accredited.

No work has been more important or needed than the control of hog cholera which is most prevalent in the lower part of the state. In all, 49,806 head of hogs were inoculated with serum and bacterins.

The work of *eradicating tuberculosis* in dairy herds has agents but largely through the instrumentality of eleven veterinarians stationed in different parts of the territory below Columbia. These additional veterinarians were possible through the increased appropriation made by the 1920 Legislature. It is the policy of the department to distribute hog cholera serum at cost, reinvesting the amounts received in additional serum. The total sales from November 1, 1919 to November 1, 1920 amounted to \$51,002.04.

In addition to hog cholera and tuberculosis control other *contagious diseases* were investigated by our veterinarians. A list of these activities, together with the cost both to the state and to the federal government, are included in the veterinarian's report. In this report will be found also a list of the employees in live stock sanitary work.

CROP PEST COMMISSION:

The Crop Pest Commission is constituted under the laws of the State of South Carolina to safeguard the agricultural

interests against the importation of diseased seed and nursery stock, and to combat insect pests and plant diseases. The Agricultural Committee of the Board constitutes the Crop Pest Commisison, with the following personnel: Mr. J. E. Wannamaker, Chairman; Messrs. R. I. Manning, B. H. Rawl, A. F. Lever and H. C. Tillman.

The Legislature at its session in 1920 for the first time made provision for financing this work, the college finances not being equal to carrying the burden. An appropriation of \$10,000 was made. This appropriation is necessary to pay the salaries of the experts, including part salary of the State Entomologist and the State Pathologist, the salaries of inspectors, travel, cost of nursery tags and other supplies, and the cost of the clerical work incident to the large correspondence and service rendered by the Commission. The Crop Pest Commission constitutes, as it were, the agricultural board of health of the state, and no investment which the state makes brings larger results by way of protection and actual returns to the farmers than the above appropriation.

The report of the State Entomologist and the State Pathologist which are attached hereto are very interesting as showing the wide scope of the work and the efficiency with which it was done. As illustrating the magnitude of the work it might be cited that 110,642 nursery permits and 35,500 sweet potato permits alone were issued during the fiscal year. The state is now completely infested with the Mexican boll weevil, but outside of our borders as shown by the map included in the report of the Entomologist, are a number of pests which will do great damage if not kept out by strict quarantine. Among these may be mentioned the pink boll worm now established in Texas and Louisiana, the European corn borer which is causing trouble in the New England States, the Mexican bean beetle now in Alabama, the Japanese beetle introduced into New York and Pennsylvania, and the brown tail and Gipsy moths which occur here and there in the northern states.

The sweet potato borer prevalent in Florida and now established in Texas, Louisiana, Mississippi and Georgia, is a real menace to the sweet potato industry and must be kept

cut by vigilance and strict quarantine laws. Among the plant diseases, cotton anthracnose and cotton wilt claim large penalties. The matter of seed cotton free from anthracnose has been made the subject of special study and precautions, and during the year 25,000 permits to sell seed cotton have been issued.

Great progress has been made recently in getting uniformity in our regulations. Conferences between the Entomologists of the southern states have led to the adoption of regulations as nearly uniform as the different state conditions would permit.

Prof. A. F. Conradi, the State Entomologist, and Prof. H. W. Barre, the State Pathologist, deserve great credit for the admirable work which they have done in initiating and carrying out the rules and policies of the Crop Pest Commission.

FERTILIZER INSPECTION AND ANALYSIS:

Under the laws of the state, the Board of Trustees of Clemson College is charged with the inspection and analysis of all commercial fertilizers sold within the state. The Board delegates its authority to a special committee known as the "Board of Fertilizer Control" which gives special oversight to enforcing the fertilizer laws. This Board of Control consists of Messrs. Richard I. Manning, Chairman; J. E. Wannamaker, H. C. Tillman, J. J. Evans and Alan Johnstone, *ex officio*.

The work of inspection is under the immediate charge of Mr. H. M. Stackhouse, Secretary of the Board of Fertilizer Control and the analytical work is done in the Chemistry Department under the supervision of the Chief Chemist, Dr. R. N. Brackett. A full report from each of these officers accompanies this paper.

Mr. Stackhouse reports a sale of 1,183,978 tons of fertilizer other than cotton seed meal, and 69,912 tons of cotton seed meal. The total tonnage was 1,249,926 as compared with 1,033,887 in 1918-19.

The total number of official samples collected by the twelve inspectors who were in the field was 1,967, of which 309 were duplicates. The total samples analyzed was 1,668 as compared

with 1,301 the year previous. In addition to the official samples, 128 "farmers samples" were analyzed. The number of farmers samples the previous year was 136.

A commission to completely revise the fertilizer laws was appointed by Gov. Manning and continued by Gov. Cooper.

The commission made its report to the General Assembly in February 1920, and their report was adopted and now constitutes the fertilizer laws of the state.

In many respects the old laws were inadequate and difficult of enforcement. The new code embodies the experience of all the states which have had fertilizer inspection and analysis, and is in every way an advance over the old code.

AGRICULTURAL AND TEXTILE SCHOLARSHIPS:

Under the laws of the state the total number of scholarships offered at Clemson is 170 four-year scholarships and 53 one-year agricultural scholarships. During the recent prosperous times there have been fewer applications for these scholarships than usual. During the year covered by this report there were in effect 110 four-year scholarships and 18 scholarships in the one-year agricultural course. Of the four-year scholarships, 14 were in textile courses.

Of the total number of scholarships, 71.8% were held by farmers' sons and the remainder by the sons of merchants, professional men, etc.

During recent years there has been a steady decline in the demand for scholarships, probably due principally to the increased prosperity of the times and the more rigid scrutiny to which applicants for scholarships are subjected by the State Board of Public Welfare. It might be interesting to know that since the establishment of the scholarships in 1904, the college has had to expend from its current funds \$264,218.28 for their maintenance, the Legislature making no appropriation for the scholarships at Clemson as it does for other state institutions.

The one-year agricultural course is a most useful one to prepare young men to become practical farmers, and yet it has always been difficult to get an appreciable attendance for

such a course. It is hoped that through the increased efforts of home demonstration agents and county agents more students will enter this course in the future.

CO-OPERATIVE WORK UNDER THE SMITH-HUGHES ACT:

The purpose of the Smith-Hughes Act is to stimulate vocational training by the schools of the state. The first requirement for success in this movement is competent teachers. With the creation of the Division of Agricultural Education three years ago, the college sought to meet a pressing need by training graduates in agriculture to teach successfully in the high schools established under the Smith-Hughes Act. Not only are teachers of agriculture trained at the college, but the work of the division includes cooperative work with the Superintendent of Education in assisting the schools by the preparation of suitable leaflets and texts to be used in connection with teaching agriculture. The work of the regular session was also supplemented by a summer school by which competent teachers could be given the necessary training to prepare them for agricultural teaching. Also, beginning with the session of 1918-19, Prof. C. S. Doggett, Director of the Textile Department, began the organization of industrial education in various mill centers in the State. In this work he was assisted by Prof. N. W. Love, and both of these officers received part of their salary from the college and part from the Smith-Hughes fund in the hands of the State Superintendent of Education. In order to get teachers who were acquainted with the textile industry and allied subjects, it was necessary to take men already trained in these lines and who had sufficient education and give them the additional coaching needed to qualify them to teach.

In South Carolina there are two main lines of industry—agriculture and textiles. For that reason the Smith-Hughes work has been directed into these two fields. In time to come it will no doubt be desirable to organize instruction in other lines, but at present that seems hardly necessary.

Wherever the work of the college extends into the school field, that phase of its work is under the supervision and di-

rection of the State Superintendent of Education, and a detailed report of the work accomplished will no doubt be found in the annual report of that officer.

MISCELLANEOUS:

In addition to the other lines of public service described in this chapter, the college in its Textile Department manufactures and sells at cost South Carolina flags.

In the Drawing Division of the Engineering Department, plans for rural school buildings are prepared and distributed without cost. The State Superintendent of Education states that this assistance to the school building program of the state has been the most important single piece of work which the college has done for the schools. It is to be regretted that larger funds are not available so that more personal inspection and supervision could be given to the making and carrying out of these plans.

A six weeks Summer School with courses for teachers, boys' club winners, deficient cotton growers and deficient students round out the cycle of the activities of the college for the fiscal year.

PART V. STUDENT AFFAIRS.

THE COST OF EDUCATION AT CLEMSON:

It has always been the purpose of the Board of Trustees to keep the cost of education at Clemson as low as possible consistent with reasonable contentment and efficiency.

The rapid rise in the price of provisions and labor necessitated an increase in the charge for board to \$16.50 per month. Laundry supplies, coal and all other items entering into the living expenses of the students increased, and uniforms were very high.

The following is an exhibit of the charges for the session covered by this report:

FOR SESSION OF NINE MONTHS

1919-20

Board—9 mos. @ \$16.50	\$148.50
Laundry—9 mos. @ \$1.65	14.85
Heat, Light and Water—9 mos. @ \$1.85	16.65
Medical fee	8.00
Matriculation and incidental fee	6.00
Laboratory fee	1.00
Breakage fee	3.00
Uniforms (dress and service)	65.55
Total for 9 months	\$263.55

This gives an average maximum cost of 97 cents per day during the session for those cadets who do not pay tuition. Tuition (\$40.00) is not included in the above analysis because only about half the student body pays it.

The average cost of uniforms to students after the first year is usually not more than one-third of the item given above.

Freshman R. O. T. C. students receive from the War Department \$18.32 as commutation for uniforms. Sophomore R. O. T. C. students receive \$9.16. Junior and Senior students in the advanced course, R. O. T. C., receive about \$117.00 as commutation for subsistence, as well as the \$9.16 on uniforms. These are 1919-20 figures. They have been materially increased for 1920-21. These payments by the government can be used to reduce materially the cost to parents.

THE CADET FUND:

The following is a statement of the Cadet Fund for 1919-20:

Item	Receipts	Expenditures	Balance	Deficit
Subsistence	\$152,367.99	\$155,074.14	\$	\$2,706.15
Uniforms	52,933.25	52,756.05	177.20	
Laundry	14,748.88	14,748.88		
H. L. and W.	12,477.02	12,474.42	2.60	
Hospital	6,026.00	7,259.49		1,233.49
Incidentals	4,745.00	7,332.34		2,587.34
Breakage	2,536.00	2,536.00		
Laboratory Fees	764.50	764.50		
Diplomas	651.00	669.59		18.59
Miscellaneous	1,549.59	1,841.15		291.56
Totals	\$248,799.23	\$255,456.56	\$179.80	\$6,837.13

Net overdraft -----	\$6,657.33
Old balance -----	10,015.33
	<hr/>
	\$258,814.56
Bal. car'd forw'd -----	\$ 3,358.00
	<hr/>
	\$258,814.56
	<hr/>
	\$258,814.56
	<hr/>

It will be noted that the deficit on subsistence was \$2,706.15, which came about through the orders of the Board after the troubles of March 10th to give better board than \$16.50 per month would furnish, without increasing the cost to the parents. The actual deficit would have been around \$6,200 but for the fact that while the students were absent from March 10th to March 21st we saved about \$3,500. This was not refunded but was used up in giving better board after March 21st.

The board given from March 21st to the end of the session was at the rate of approximately \$21.00 per month.

HISTORY OF CADET FUND:

The history of the Cadet Fund for the nine-year period of my presidency may be of interest. During this period, July 1, 1911 to June 30, 1920, the total receipts amounted to \$1,270,778.44, and the disbursements to \$1,275,269.63.

The subsistence item for the same period was, receipts \$727,470.78, disbursements \$726,655.20, a practical equality when the magnitude of the figures is considered, the difference representing about two days' board.

It has been the policy of the college to give back to the cadets in service all that they pay. Of course it would be neither legal nor proper to use college funds (further than the scholarships created by law provide) to pay for the living expenses of the students, and this is not done.

The experiences of the year indicate the necessity of increasing the charge of board to \$20.00 per month in 1920-21. This figure will be reduced as soon as there is sufficient decline in the cost of commodities and labor that would justify a decrease.

THE MESSHALL:

During the session, approximately 562,500 meals were served in the messhall to the cadets. It would take a family of five 102 years to serve as many. It is not only possible but likely, that once in a while something will go wrong. However, an inspection of this great dining room will convince the visitor that everything possible is done to give the best service possible for the price paid. At \$16.50 per month, the amount available per meal is only 18.3 cents, out of which must come labor, supervision, fuel and other costs, as well as food. No detail of the college organization has received more attention than the messhall during the past ten years, and its equipment and refrigeration facilities are the very best. A tile floor throughout completed during this summer at a cost of about \$7,000 is the last detail necessary for ideal conditions.

BARRACKS ACCOMMODATIONS:

In regard to living conditions in the barracks, I quote the following paragraph from a report of Col. Cummins to me:

"Barracks Conditions. Barracks conditions that have to do with the comfort and convenience of the cadets cannot be surpassed in this section of the country. I was sent on an inspecting tour in connection with R. O. T. C. work to ten institutions in Tennessee, Georgia, North and South Carolina, and in no place that I visited were the appointments and arrangements comparable to those that we have here. The students in a good many of these institutions sleep in double-deck beds, in small rooms, and have a mess that does not compare favorably at all with the mess at the college. The cadets here are in great good fortune that they have such comfortable and convenient quarters."

CADET HOSPITAL:

The cadet hospital showed a deficit in its operating expenses for the year of \$1,233.49, indicating the necessity of increasing the medical fee.

Our present hospital, while enjoying a wonderful record for efficient service, is subject to criticism from the standpoint of being badly out of date. When built nearly thirty years ago it was doubtless considered entirely adequate.

The Board in 1914 made the necessary appropriation to build a new and up-to-date hospital on the beautiful site overlooking Bowman field. The plans were completed and the brick delivered at the site, when the world war broke out. The price of cotton dropped, and with it our fertilizer tax, so that it was impossible to go forward with the project. After 1914, the fertilizer tax began to increase, but so greatly did cost of operation increase also that there was no chance to finance the work. However, when the fertilizer tax reached a higher level, approximately \$45,000 was put into a sinking fund to build the hospital just as soon as building conditions became normal. Meanwhile, an appropriation was made for a steam heating system and other improvements at the present hospital, and several thousand dollars will be spent on additional equipment and furnishings next session. No one need have any fears as to the efficiency of the medical service that will be rendered sick cadets.

During the session after Christmas, we had a serious epidemic of mumps and influenza. In all, we had 151 cases of mumps and 142 cases of influenza. I am glad to say that we did not have a single case of pneumonia incident to influenza. Two extra trained nurses were called in to help in the emergency. The chapel and lower halls of barracks No. 1 were used as emergency hospitals.

On January 21st, Cadet John R. Carpenter of Hartsville died of heart failure from which he had been a sufferer before coming to Clemson. An escort of honor from the student body and faculty accompanied the body home. Memorial exercises were held in chapel on January 21st. Cadet Carpenter was an excellent student, and a worthy young man in every way. His death is greatly regretted by faculty and students.

FIRE PROTECTION:

In regard to fire protection in the barracks, Col. Cummins has made several tests by sounding fire calls and recording the time necessary to empty barracks. On the evening of June 4th, fire call was sounded and assembling cadets on the parade ground and there giving them certain information was

all comprised within three minutes from the time the fire call was sounded. With the stairways at both ends of the barracks and a number of fire escapes on the rear walls, the students are as well protected as they could be, unless a stairway or ladder were run from each individual room!

DISCIPLINE:

The following is the demerit record of the corps of cadets for the three terms of the session:

During the first term 527 cadets, or 68% of the corps, received less than twenty demerits, the limit beyond which a cadet is excused from the honor roll. During the second term 69%, and during the third term 62%, attained the same standard. An average of 351 students, or nearly one-third of the corps, had perfect term records,—i.e., no demerits.

During the first term, not a single cadet exceeded the limit of demerits; during the second term only two cadets exceeded the sessional limit; and during the third term nine exceeded the term and sessional limits. In other words, out of a total of 831 students in barracks, only *eleven* failed to meet the standard required for remaining in college.

During the session 17 students were dismissed by the Discipline Committee, 11 students were suspended for periods of one session or less, and 25 were given local punishments by way of restriction to room, demerits and extras.

RELIGIOUS INFLUENCES:

Four churches representing the Presbyterian, Methodist, Baptist and Episcopalian denominations, are located near the college, and cadets worship in the churches of their choice every Sunday morning during the session. Chapel services are held in Memorial Hall every morning except Saturday and Sunday. The college contributes \$500.00 to the salary of each of the four resident ministers, and in return they do pastoral work among the students in barracks. The college also contributes \$500.00 to the salary of the general Y. M. C. A. Secretary. Attendance upon chapel and church services is required, except in the case of Catholics and Jews, who are

required during church hour on Sunday to remain quietly in a room in barracks.

RECREATION:

Play is necessary as well as work in a well rounded college life. The college plant includes, along with class rooms and laboratories, proper facilities for rest and recreation. The Y. M. C. A. building, with its swimming pool, bowling alley, etc., the Bowman athletic field and Riggs field, 400 by 1,000 feet, furnish ample facilities for healthful outdoor exercises. Among the principal lines of student activities, in addition to the various lines of athletics, may be mentioned the six literary societies, class dance clubs and the student publications—The Tiger, The Chronicle and Taps.

PART VI. THE PRESENT SESSION, 1920-21.

At the time of writing this report, December 15th, we are in the midst of another fiscal year and the session of 1920-21 is well under way. In addition to the record of 1919-20 a few words regarding present conditions may not be amiss.

The return of old students this session was as usual most gratifying. After deducting for those who graduated and finished their courses, there were 501 old students in college at the close of last session. Of this number, 479 or 95.5% applied for readmission this fall.

Clemson's average sessional enrollment is about 809. The total enrollment to date is about 5% below this figure and about 12% below the bumper attendance of last session, which attendance included a large number of students who had been in the military service and returned to take up their work where they had laid it down when they enlisted. Then too, the great prosperity of last year swelled the attendance of all southern colleges. Our losses this session are in new students of the Freshman and One Year Agricultural Classes. In that respect Clemson suffered along with other southern

agricultural colleges within the cotton belt. For example, at Auburn the Freshman Class is 24% smaller this session than last; at the North Carolina A. & E. College, 15% smaller; at the Mississippi A. & M. College, 37% smaller. The attendance of agricultural colleges, coming as it does largely from the farming class, is harder hit by present financial conditions than other colleges.

The discipline and esprit of the corps, in marked contrast with last session, is all that could be desired. The cooperative spirit of the Senior Class towards the administration and its excellent attitude and conduct are especially worthy of comment and commendation. The events of last spring, hurtful as they were to the reputation of the college, like a storm, cleared the local atmosphere and made possible a return of college loyalty, confidence and contentment that have been all too lacking during the trying World War period. No discontent and no cause for complaining are discernable thus far in the student body, and I trust that none will develop.

The higher rate charged for board this session, a better organization, and an excellent mess officer have entirely cured troubles that were unavoidable during the winter of 1920, when efficient labor and sufficient provisions were sometimes unobtainable at any price.

With no prospect of having money with which to build the new hospital, projected in 1914, a substantial appropriation was made in the July budget to modernize our present facilities and make them adequate until the new hospital can be built.

REQUEST FOR LEGISLATIVE APPROPRIATIONS:

In accordance with the practice of twenty-five years, the college is asking no appropriations for its collegiate work. Our recommendations are confined entirely to those non-collegiate activities which the Legislature now supports.

The following is a list of the appropriations granted in 1920 and our recommendations for 1921:

Lines of Service	Appropriated 1920	Recommended for 1921
1. Extension Service -----	\$ 81,070.95	\$ 94,147.15
2. Tick Eradication -----	20,000.00	20,000.00
3. Live Stock Sanitary Work ----	30,000.00	50,000.00
4. Agricultural Research -----	25,000.00	50,000.00
5. Crop Pest Work -----	10,000.00	10,000.00
6. Slaughter of Diseased Stock---	2,000.00	2,000.00
	<hr/> \$168,070.95	<hr/> \$226,147.15

These lines of public service are too well established and too well known to need exposition here. Only a word regarding the increases would seem necessary.

1. The increase in the item for Extension Service is merely to meet the provisions of the Smith-Lever Acts, the terms of which have been already approved by the General Assembly. After one more increase in 1922 of approximately \$17,000.00 the amount becomes stationery at approximately \$112,000.00.

2. The item for Tick Eradication remains unchanged. But for the free range condition existing in a number of the lower counties, this work would by this time have been completed.

3. The increase in this appropriation is for the purpose of locating additional veterinarians over the state to look after the control of contagious diseases. At present eleven veterinarians are stationed in the lower half of the state, but this number is insufficient to meet the demands for service. The additional funds will be used to employ additional veterinarians and inspectors.

4. Agricultural Research is at the foundation of the agricultural prosperity of the state. The funds asked for this purpose represent the only money spent by South Carolina in working out its agricultural problems. With the higher salaries and the increased cost of labor and all materials entering into agricultural research, this important work, dependent upon a fixed appropriation of \$30,000 from the federal treasury, has been sorely pressed. But for the legislature appropriation of 1920, a large part of the Experiment Station's work, particularly at the sub-stations at Summer-

ville and Florence, would have suffered greatly. Fifty thousand dollars was asked in 1920 and this request is repeated. The appropriation of \$25,000 in 1920 was used chiefly to support the work of the sub-stations. The parent station at the college is in great need of assistance. Since there are no college funds available, it is necessary to urge that the full amount asked last year and this be appropriated.

5. For Crop Pests and Diseases, no increase is requested. Ten thousand dollars is sufficient to carry on this work successfully. Perhaps no single appropriation for control work is more important than this. But for the vigilance of the State Entomologist and the State Pathologist, South Carolina would soon be flooded with plant diseases and insect pests brought into the state through diseased seeds, plants and nursery stock.

6. This item for reimbursing stock owners for animals destroyed in carrying out the laws relating to contagious diseases is not always used, but is necessary because of existing statutes.

The total of \$226,147.15 represents a very small amount indeed to expend for agricultural service in a state 80% of whose people are engaged in agriculture.

In presenting these appropriations, the college does not come as a suppliant, begging that the appropriations be made. The college regards itself as an agent of the Legislature to carry out loyally and efficiently whatever amount of public service the General Assembly is willing to finance. Its duty is done when it presents these public needs. It is for the Legislature to say how much of the service, pointed out as needful, shall be done.

THE FINANCIAL PROSPECT:

In the light of changed agricultural conditions since the fiscal year opened on July 1st, the college is confronted with a financial crisis.

But for a reserve fund of \$154,000 saved up through several years by omitting many things needful to be done, the college this fall could not have opened its doors to the young

men of South Carolina. Since July 1st, the privilege tax has brought in very little money and it was not possible of course in these times to borrow or overdraw at our banks. The public service supported by state and federal appropriations goes steadily on, but Clemson College as a college would this fall have failed to function but for the reserve above referred to.

What the fertilizer tax receipts this fiscal year, (July 1st, 1920 to June 30, 1921) will total no one can now predict, but that they will fall greatly below the figure of last year, no one can doubt who correctly senses the psychology of our farmers and knows their financial limitations. When conditions were not nearly so bad as they are now, the tax dropped from \$276,000 in 1915 to \$155,000 in 1916, and we had to get permission from the Legislature to borrow \$62,400, which has been paid in full. We will be lucky indeed if the drop from 1920 to 1921 is not more than from \$313,000 to \$150,000, and in that event something must be done to tide us over.

In 1890 the friends of Clemson College in the Legislature proposed that if given the fertilizer tax of 25c per ton on all fertilizers sold within the state, the Trustees would organize and finance an efficient system of inspection and analysis and with what balance remained would "*erect and maintain*" an agricultural college without direct appropriations by the State. This understanding was enacted into law.

During the thirty-one years of this agreement, 1890-1921, the fertilizer tax has averaged \$154,740.33 per year—how much less than the public imagines!

During the thirty-one years the cost of the analysis and inspection has amounted to \$522,495.01, leaving for the maintenance and erection of the college for 31 years a possible \$4,274,467.87.

But from time to time the Legislature has seen fit to modify the original bargain by placing upon the college certain lines of public service, the cost of which have come from that balance which was to go to "*erect and maintain*" the college.

In 1901 an act was passed providing for the work of the State Veterinarian and stipulating that the cost of this work

should be paid from the funds of Clemson College. This work has cost \$109,983.25.

In 1904 the Scholarship Act was passed, and again it was specified that the cost should come from the funds of Clemson College. These scholarships have cost \$264,218.28.

In 1912 the work of the Crop Pest Commission was established and with the usual provision as to the payment of expenses. This work has cost the college \$33,637.68.

To carry out the terms of the above acts has cost the college a total of \$407,839.21.

In addition to the public service required by law, the college, before the Lever Act was passed, realizing the need for extension service, the need for branch stations and the need of additional support for research, etc., spent the following sums:

1. For extension service -----	\$127,692.04
2. For branch experiment stations -----	122,739.98
3. For agricultural research -----	25,313.31
4. For miscellaneous public service -----	28,578.63
Total -----	<u>\$304,323.96</u>

The Trustees might selfishly have omitted to enter these lines of public service, since they were not required by law, and devoted these funds solely to collegiate interests, but the work needed to be done, and the agricultural college of the state owed this duty to its people. Sacrifices of buildings and equipment had to be made, but the above expenditures laid a foundation for the present splendid structure of public service now financed, as it should be, entirely by state and federal appropriations.

During the first ten years of the agreement (1890 to 1899) the gross tax averaged \$47,886.83; during the next ten years, (1900 to 1909), \$171,477.47; and during the last ten years, (1910 to 1920), \$229,004.74. As the average funds increased the Trustees developed the college in size and diversity in proportion thereto. With the beginning of the war, conditions changed. The fertilizer tax fluctuated greatly and greatly in-

creased costs made a larger support necessary. In January, 1916, the Legislature authorized a loan of \$62,400.00 to protect the college against a condition somewhat similar to that which now confronts it. By 1919 this loan with interest was repaid in full, but during the repayment there was no chance for growth at the college. In 1920 the Legislature relieved the college of the cost of some of its lines of public service which it could no longer carry. That relief and a bumper fertilizer tax of \$313,000.00 carried us safely through last fiscal year.

This year, with a prospect of the fertilizer tax being cut to half of last year's figures, the financial predicament of the college is little short of desperate. The costs of operation cannot be materially lessened during this fiscal year, and there are no items of buildings or large equipment in the 1920-21 budget that can be lopped off.

A summarized statement of the college budget enacted by the Board July 1st last for the fiscal year 1920-21 will show clearly the danger ahead:

PROSPECTIVE RESOURCES

July 1, 1920 — June 30, 1921.

1. Interest on Clemson Bequest -----	\$ 3,512.36
2. Interest on Landscript -----	5,754.00
3. Morrill & Nelson funds (U. S.) -----	25,000.00
4. Estimated tuition -----	17,000.00
5. Estimated rents and misc. receipts -----	22,000.00
	<hr/>
	\$ 73,266.36
6. Assumed fert. tax -----	\$300,000.00*
7. Less cost of analysis and inspect'n 51,570.00—	248,430.00
	<hr/>
Total funds available for col- work -----	\$321,696.36
	<hr/>

* The estimate of the fertilizer tax at \$300,000.00 last July 1st when the price of cotton was high, seemed reasonable and even conservative—anyway, no smaller figure was adequate to carry out the college budget of expenditure, which was as follows:

SUMMARY OF BUDGET FOR 1920-21.

EXPENDITURES

1. Salaries of teachers and officers -----	\$169,150.00
2. Labor, supplies, coal, repairs, insurance, etc. --	106,395.34
3. Teaching equipment, live stock, etc. -----	42,146.50
	<hr/>
Total collegiate expenses -----	\$317,691.84
4. Scholarships (1920-21) -----	11,000.00
5. Agricultural research -----	6,000.00
	<hr/>
	\$334,691.84
6. Less 4% probable savings and lapses -----	13,387.67
	<hr/>
<i>Total Expenditures</i> -----	<u>\$321,304.17</u>

What are we to do about it?

Suppose financial restrictions as to credit continue and the agricultural conditions do not improve? Even by consuming our reserve of \$154,000.00 we cannot carry out our budget with less than \$150,000 from the fertilizer tax, and then at the close of this fiscal year and before the Legislature will meet again, we will find ourselves without money to open the college and carry on during the first "dry" six months of 1921-22.

The Legislature has a right, and theirs is the responsibility to say whether or not they will insure us in some way against the mutations of the fertilizer tax as an alternative to closing the college before the end of this session or failing to open its doors in the fall of 1921. As faithful public servants, charged with the responsibility of administering one of the state's largest colleges, the Board must agree that unless they give the Legislature an opportunity to guarantee the college against the present emergency, either by an appropriation or by authorizing the State to borrow in our behalf, a responsibility and risk must be assumed that it would be impossible to justify. The state and the college entered into the original bargain in good faith for the *very purpose of giving to Clemson a more adequate support than could be expected from*

legislative appropriations. When conditions are such as to imperil the very purpose for which that bargain was made, it is high time, both in law and in morals, to make known the facts to the Legislature. The Legislature will recognize, as we do, that it would be indeed a catastrophe to the state if the college were forced to suspend for a time, and our student body and faculty become scattered. Uninsured by legislative protection, such a calamity is possible, even probable, because of the nature of Clemson's support and the present unusual conditions which may reduce the fertilizer tax to the lowest amount in recent years—an amount upon which it is impossible to keep the college going.

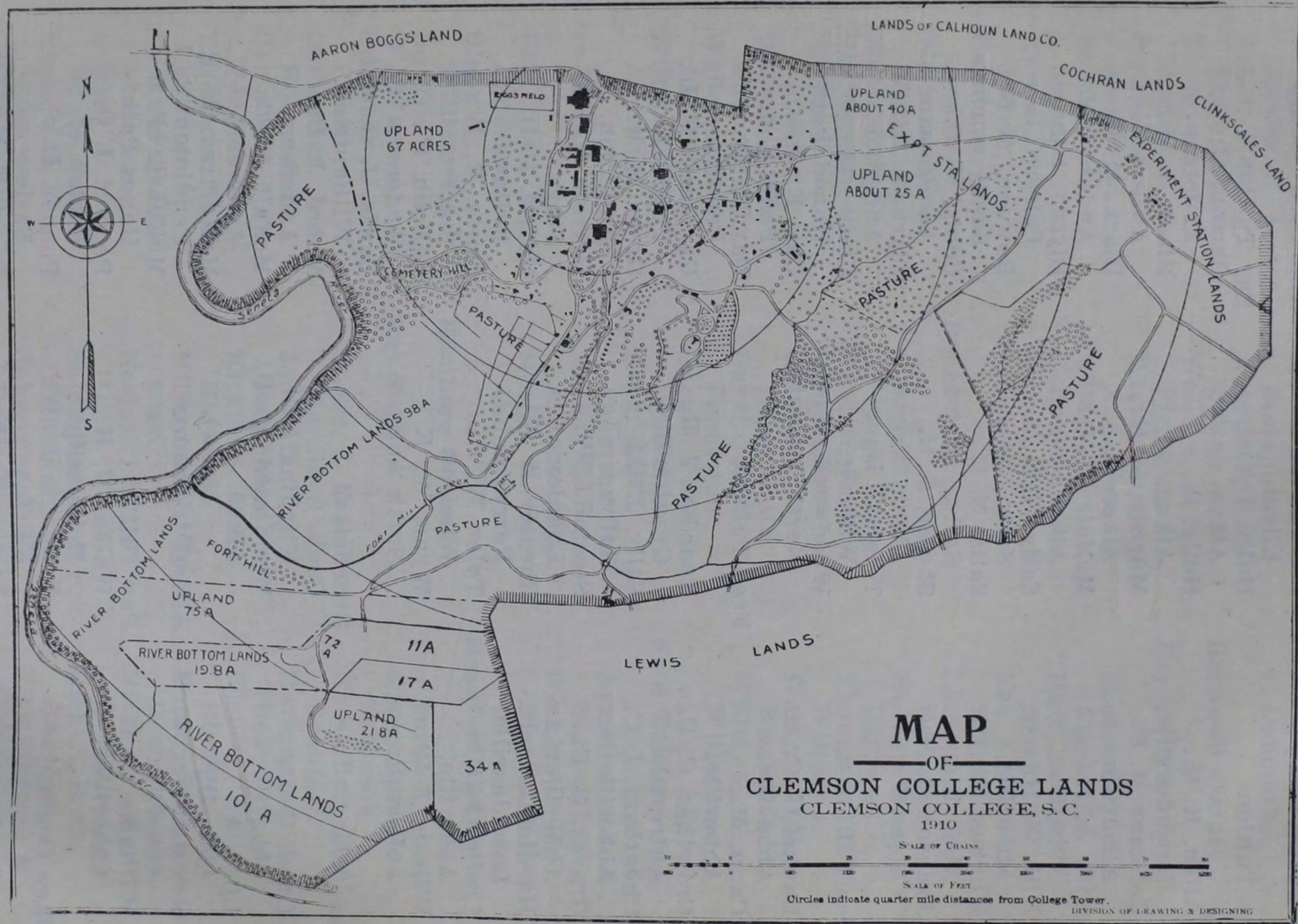
In the present emergency, the responsibility must rest with the Legislature, and I have no fears as to the manner in which this responsibility will be met.

Respectfully submitted,
W. M. RIGGS,
President, Clemson Agricultural College.

P. S. As required by law, I present herewith a list of students who pay tuition, those who do not, and those who hold scholarships.

Attached also are reports of the following officers:

1. The Treasurer.
2. The Auditor.
3. The Board of Visitors.
4. The Director of Experiment Station.
5. The Director of Extension.
6. The Secretary of the Fertilizer Board.
7. The Chief Chemist.
8. The State Entomologist.
9. The State Veterinarian.
10. The Board's Findings in the Investigations of March 13th and April 8th.



CLASSIFICATION OF STUDENTS AS REGARDS PAYMENT OF
TUITION AND HOLDING OF SCHOLARSHIPS.

Abbeville County

Pay Tuition

Allen, R. G.,
Lowndesville.
Coleman, J. F.
Abbeville.
Hill, A. M.,
Abbeville.
Hill, W. H.,
Abbeville.
Hughes, W. T.,
Abbeville.
Johnson, J. M.,
Abbeville.

Free Tuition

Banks, G. C.,
Abbeville.
Cann, M.,
Abbeville.
Crowther, C. C.,
Antreville.
Cheatham, J. C.,
Abbeville.
Graves, C. C.,
Abbeville.
Hardin, A.,
Lowndesville.
Leslie, A. E.,
Abbeville.
Wilson, J. W.,
Abbeville.

Beneficiary

Cann, George,
Abbeville.
Link, A. B.,
Abbeville.
Sweetenburg, J. R.,
Abbeville.
Williams, S. A.,
Abbeville.

Aiken County

Pay Tuition

Burckmeyer, L. A.,
North Augusta.
Eubanks, J. B.,
Aiken.

Hill, L. W.,
Ellenton.

Holly, H. M.,
Aiken.

Holly, R.,
Aiken.

Murray, R. N.,
Aiken.

McNair, M. P.,
Aiken.

Sally, H. A.,
Sally.

Sally, N. R.,
Sally.

Shuler, J. H.,
Aiken.

Tyler, C. L.,
Windsor.

Woodward, Wade,
North Augusta.

Free Tuition

Rearden, J. R.,
Graniteville.

Sally, J. D.,
Sally.

Steele, J. W.,
Langley.

Shealey, A. N.,
Perry.

Tyler, W. P.,
Windsor.

Wynn, W. K.,
North Augusta.

Beneficiary

Cook, L. H.,
Kitching Mill.
Woodward, M. B.,
Aiken.

Allendale County

Pay Tuition

Walker, J. K.,
Mellettville.
Youmans, L. W.,
Fairfax.
Zeigler, C. H.,
Allendale, R. 1.

Free Tuition

R. Farmer,
Allendale.

Anderson County

Pay Tuition

Barton, C. T.,
Anderson.
Black, J. M.,
Anderson.
Black, M. J.,
Anderson.
Blythe, Leon,
Pelzer.
Bowden, A. B.,
Sandy Springs.
Cobb, W. C.,
Anderson.
Clark, J. R.,
Anderson.
Clatworthy, W. M.,
Honea Path.
Day, E. S.,
Pendleton.
Day, R. E.,
Pendleton.
Gambrell, F. L.,
Pendleton.
Green, S. M.,
Anderson.
Herron, R. P.,
Starr.
Harris, L. D.,
Belton.
Jones, R. W.,
Starr.
LaBoon, F.,
Anderson, R. 4.
Lewis, J. G., 1st,
Williamston.
Moore, J. B.,
Anderson.
McFall, H. T.,
Anderson.
McMurtrey, W. R.,
Pendleton, R. 1.
McKenzie, F. E.,
Honea Path.
Pepper, J. O.,
Easley, R. 5.
Pepper, E. S.,
Easley.
Paget, F. M.,
Anderson.
O'Donnell, L. P.,
Anderson.
Pearman, C. G.,
Anderson.

CLASSIFICATION OF STUDENTS AS REGARDS PAYMENT OF TUITION AND HOLDING OF SCHOLARSHIPS—(Continued)

Tripp, W. W., Easley, R. 4.	McGee, S. A., Starr.	Zeigler, F. M., Denmark.
Tripp, T. A., Easley, R. 4.	Rogers, J. B., Belton.	Barnwell County
Thompson, J. T., Anderson.	Wallace, A. B., Piedmont.	Pay Tuition
Smith, J. L., Anderson.	Wigington, J. T., Anderson.	Boylston, B. L., Blackville.
Smith, J. J., Starr.	Wiles, F. A., Honea Path.	Hair, A. B., Blackville.
Russell, B. A., Autun.	Woodcock, O. B., Pelzer.	Lee, A. P., Williston.
Power, R. M., Anderson.	Beneficiary	Lemon, A. N., Barnwell.
Welborn, N. L., Williamston.	Cannon, C. B., Honea Path.	Molair, W. L., Barnwell.
Webb, T. J., Anderson.	Farmer, E. F., Anderson.	Thompson, F. M., Williston.
Webb, J. H., Anderson.	Gaines, J. G., Honea Path.	Walker, J. M., Blackville.
Watson, L. F., Anderson, R. 1.	Garvin, J. E., Pendleton.	Willis, M. A., Williston.
Wallace, W. J., Anderson.	Garvin, P. M., Pendleton.	Free Tuition
Wilhite, F. T., Anderson.	King, R. F., Anderson, R. 1.	Armstrong, J. B., Barnwell.
Free Tuition	Martin, G. H., Anderson, R. 4.	Dyches, L. B., Blackville.
Beil, J. C., Anderson.	Martin, M. C., Anderson.	Beaufort County
Bigby, L. S., Williamston.	Bamberg County	Pay Tuition
Bowlan, T. G., Anderson.	Pay Tuition	Keyserling, H. L., Seabrook.
Crenshaw, J. C., Pelzer.	Cooke, J. D., Olar.	Keyserling, H. H., Beaufort.
Culbertson, J. A., Honea Path.	Jones, D. B., Bamberg.	Marscher, A. A., Beaufort.
Campbell, R. C., Pendleton.	Kirkland, J. M., Ehrhardt.	Peeples, Philip, Bluffton.
Davenport, O. F., Belton.	Millhouse, J. G., Olar.	Raney, E. D., Beaufort.
Duckworth, B. F., Anderson.	Neeley, J. E., Olar.	Ricker, G. F., Beaufort.
Dunlap, J. M., Honea Path.	Sojourner, D. P., Denmark.	Ricker, E. C., Beaufort.
Erskine, J. H., Anderson.	Sojourner, J. H., Denmark.	Worthington, W. C., Frogmore.
Griffin, C. W., Anderson.	Free Tuition	Free Tuition
Hubbard, W. B., Anderson.	Jones, B. B., Branchville.	Hiers, L. H., Beaufort.
McGee, R. F., Starr.		

CLASSIFICATION OF STUDENTS AS REGARDS PAYMENT OF
TUITION AND HOLDING OF SCHOLARSHIPS—(Continued)

Berkeley County	Boylston, C. L., Charleston.	Newton, W. H., Charleston.
Pay Tuition	Bissell, J. J., Charleston.	Free Tuition
Villeponteaux, G. W., Cordesville.	Carr, A. F., Meggetts.	Bunch, E. T., Charleston.
Free Tuition	Carr, S. P., Meggetts.	Fraser, H. E., Mt. Pleasant.
Shuler, C. L., St. Stephens.	Cook, G. F., Charleston.	Givner, S., Charleston.
Beneficiary	Davis, G. E. R., Charleston.	Jenkins, E. M., Edisto Island.
Harvey, G. F., Pinopolis.	Davis, Ralph, Martins Point.	McCants, L. A., Mt. Pleasant.
Smith, D. P., Ridgeville.	Digner, C. A., Charleston.	O'Neill, B., Charleston.
Calhoun County	Denaro, J. M., Charleston.	Pinckney, J. S., Charleston.
Pay Tuition	Geraty, C. C., Yonges Island.	Ravenel, W. J., Charleston.
Banks, R. W., St. Matthews.	Geraty, J. W., Yonges Island.	Seabrook, E. M., Charleston.
Pearlstine, J. T., St. Matthews.	Grice, G. D., Charleston.	Sessions, B. G., McClellanville.
Sprigner, R. R., St. Matthews.	Laurey, H. E., Charleston.	Simmons, T. R., Charleston.
Stoudemire, L. C., Lone Star.	Martin, J. V., Charleston.	Smith, J. P., Charleston.
Summers, D. K., Cameron.	Mikell, I. J., Edisto Island.	Steinmeyer, G. E., Charleston.
Wimberly, L. B., St. Matthews.	Mikell, S. H., Edisto Island.	Beneficiary
Free Tuition	Morrison, W. M., McClellanville.	Bailey, E. M., Martins Point.
Banks, B. C., St. Matthews.	McGillivray, R. M., Charleston.	Leland, J. M., McClellanville.
Cauthen, H. W., Fort Motte.	Ohlandt, F. W., Charleston.	Linder, E. O., Adams Run.
Rast, W. M., St. Matthews.	Perry, F. T., Yonges Island.	Mitchell, C. A., Edisto Island.
Beneficiary	Riley, A. J., Charleston.	Townsend, J. C., Martins Point.
McGowan, W. D., Cameron.	Rittenberg, M. B., Charleston.	Walpole, B. L., Johns Island, R. 1.
Charleston County	Rivers, J. D., Charleston.	Whaley, E. C., Martins Point.
Pay Tuition	Rustin, R. B., Charleston.	Cherokee County
Allen, W. S., Charleston.	Schwettmann, F. W., Charleston.	Pay Tuition
	Seabrook, T. H., Charleston.	Allison, J. W., Blacksburg.
	Seabrook, O. F., Martins Point.	

CLASSIFICATION OF STUDENTS AS REGARDS PAYMENT OF TUITION AND HOLDING OF SCHOLARSHIPS—(Continued)

Fortenberry, R., Gaffney.	Refo, H. C., Chester.	Leland, R. E., McClellanville.
Inman, A. K., Wilkinsville.	Simpson, C. B., Richburg.	Richbourg, H. A., Summerton.
Sarratt, R. C., Gaffney.	Wade, G. L., Leeds.	Beneficiary
Spake, W. N., Gaffney.	Yarborough, J. H., Lowryville.	Felder, J. H., Silver.
Turner, T. P., Gaffney.	Beneficiary	Harvin, J. L., Pinewood.
Free Tuition	Atkinson, L. A., Lowryville.	Mahoney, W. M., Manning.
Haas, C. I., Gaffney.	Sanders, D. A., Richburg.	Colleton County
Haas, R. D., Gaffney.	Simpson, T. L., Edgmoor.	Pay Tuition
Smith, T. D., Blacksburg.	Stevenson, D. W., Richburg.	Marvin, B., White Hall.
Beneficiary	Stevenson, R. A., Richburg.	McGowan, J. L., Ehrhardt.
Huggins, C. B., Gaffney.	Stevenson, W. B., Richburg.	Sanders, H. M., Walterboro.
Robbs, L. G., Gaffney.	Chesterfield County	Free Tuition
Chester County	Pay Tuition	Breland, E. P., Ruffin.
Pay Tuition	Gregory, G. W., Jefferson.	DuRant, C. O., Cottageville.
Abernathy, W. H., Fort Lawn.	McArn, D. H., Cheraw.	Beneficiary
Anderson, E. T., Chester.	Odom, W. H., Chesterfield.	Breland, E. M., Walterboro.
Culp, C. L., Edgemoor.	Free Tuition	DuRant, A. L., Cottageville.
Darby, J. E., Lowryville.	Thrower, W. H., Cheraw.	Willis, H. A., White Hall.
Stevenson, H. F., Richburg.	Beneficiary	Darlington County
Wade, W. M., Lowryville.	Gulledge, J. D., Ruby.	Pay Tuition
Wooten, A. W., Lewis Turnout.	Hartzell, G. W., Cheraw.	Anderson, O. W., Timmons ville.
Free Tuition	Clarendon County	Byrd, D. A., Society Hill.
Bankhead, J. M., Lowryville.	Pay Tuition	Conder, H. W., Darlington.
Gage, G., Chester.	Barron, A. I., Manning.	DeWitt, A., Darlington.
Melton, G. H., Chester.	DuBose, R. E., Sardinia.	DuBose, Glen, Lamar.
	Hodge, J. E., Manning.	Fields, O. R., Lydia.

CLASSIFICATION OF STUDENTS AS REGARDS PAYMENT OF TUITION AND HOLDING OF SCHOLARSHIPS—(Continued)

Gandy, J. M., Hartsville.	Atkins, M. T., Latta.	Spearman, J. H., Trenton.
Jordan, E. B., Lamar.	McMillan, S. E., Latta.	Fairfield County
King, H. M., Hartsville.	Free Tuition	Pay Tuition
Perritt, L. G., Lamar.	Hamilton, S. S., Dillon.	Hardin, W. R., Winnsboro.
Tillotson, W. E., Hartsville.	LeGette, M. A., Latta.	Jones, M. L., Longtown.
Sumner, J. P., Hartsville.	Rogers, J. W., Dillon.	Leitner, J. W., Bookman,
Sompayrac, H. P., Society Hill,	Dorchester County	Leitner, W. W., Bookman,
Winters, F. L., Mont Clare.	Pay Tuition	McEachern, D. M., Longtown.
Woodham, B. G., Hartsville.	Ackerman, T. H., St. George.	McMeekin, T. R., Alston.
Free Tuition	Cordes, H. D., Summerville.	McMeekin, S. C., Alston.
Auten, J. F., Hartsville.	Free Tuition	McMeekin, F. R., Monticello.
Banks, M. L., Hartsville.	Allen, A. N., Summerville.	McMeekin, T. L., Monticello.
Banks, W. D., Hartsville.	Manigault, E. L., Summerville.	Shedd, R. R., Monticello.
Boone, S. C., Hartsville.	Voight, J. P., Summerville.	Free Tuition
Calhoun, C. F., Dovesville.	Beneficiary	Cathcart, A. B., Winnsboro.
Carpenter, J. R., Hartsville.	Henry, J. A., St. George.	Cathcart, R. S., Winnsboro.
DuRant, C. L., Mont Clare.	Minus, P. M., St. George.	Cathcart, S. L., Winnsboro.
Hoffmeyer, H. F. L., Florence.	Edgefield County	Dunlap, W. M., Rockton.
Beneficiary	Pay Tuition	Stevenson, C. A., Winnsboro.
Butler, C. M., Hartsville.	Hollingsworth, W. S., Edgefield.	Beneficiary
Byrnes, T. H., Hartsville.	Mathis, W. B., Colliers.	Harvey, S. A., Woodward.
Dunlap, M. T., Hartsville.	Mays, F. L., Edgefield.	Nicholson, S. W., Woodward.
Stokes, C. H., Timmons ville.	Thurmond, J. S., Edgefield.	Florence County
Dillon County	Free Tuition	Pay Tuition
Pay Tuition	Adams, J. R., Colliers.	Benton, L. L., Timmons ville.
Alford, M. C., Latta.		Divine, H. W., Florence.

CLASSIFICATION OF STUDENTS AS REGARDS PAYMENT OF
TUITION AND HOLDING OF SCHOLARSHIPS—(Continued)

Epps, A. R., Lake City.	Brooks, J. T., Fountain Inn.	Berry, J. H., Greenville.
Huggins, C., Timmons ville.	Brooks, H. C., Fountain Inn.	Berry, W. E., Greenville.
Lawhon, W. B., Timmons ville.	Cannon, V. L., Simpsonville.	Chapman, C. F., Pelzer.
Matthews, S. C., Scranton.	Cooper, T. B., Greenville, S. R. 4.	Chapman, R. C., Pelzer.
Smith, J. H., Timmons ville.	Cunningham, J. L., Greer.	Duckett, L. L., Fountain Inn.
Free Tuition	Cooper, J. L., Greenville, R. 4.	Ellis, J. W., Greenville.
Eaddy, Z. L., Hemmingway.	Davis, E. P., Greenville.	Givens, J. W., Fountain Inn.
Garner, J. F., Timmons ville.	Dawes, H. L., Greenville.	Gilmer, G. G., Greenville.
McKenzie, M. A., Lake City.	Dillard, R. L., Greer.	Going, O. F., Greenville.
Stanley, G. A., Bannockburn.	Ellis, W. J., Greenville.	Hellams, J. I., Travelers Rest.
Beneficiary	Farrell, J. G., Greenville.	McKinney, A. J., Greenville.
Hinson, I. L., Scranton.	Gilfillin, J. M., Greenville.	Parkins, D. F., Greenville.
Hinson, H. L., Scranton.	Goldsmith, J. M., Greenville.	Scott, V. M., Simpsonville.
Sansbury, L. S., Bannockburn.	Goldsmith, Wm., Greenville.	Beneficiary
Stanley, R. E., Bannockburn.	Gower, A. G., Greenville.	Carr, D. L., Piedmont, R. 3.
Georgetown County	Hendrix, W. B., Greenville, R. 6.	Loftis, C. B., Travelers Rest.
Pay Tuition	Marshall, Dan, Greenville, R. 3.	Kilgore, A. R., Simpsonville, R. 2.
Rosa, J. R., Georgetown.	McHugh, J. F., Greenville.	Hendricks, C. T., Taylor.
Wilson, D. I., Oakes.	Perry, F. M., Greenville.	Poole, J. C., Travelers Rest.
Free Tuition	Reese, M. R., Greer, R. 3.	Sprouse, J. C., Fountain Inn.
Bailey, R. W., Andrews.	Smith, C. E., Greenville.	Sloan, S. R., Simpsonville.
Greenville County	Smith, J. S., Greenville.	Wingo, W. P., Campobello.
Pay Tuition	Smythe, E. A., Greenville.	Greenwood County.
Armstrong, H., Fountain Inn.	Turner, H. R., Greenville.	Pay Tuition
Ballentine, W. L., Greenville.	Wade, J. L., Greenville.	Barksdale, D. B., Greenwood.
Ballenger, W. M., Greer.	Free Tuition	Bryan, G. T., Greenwood.
	Bauman, J. H., Greenville.	Durst, J. W., Greenwood.

CLASSIFICATION OF STUDENTS AS REGARDS PAYMENT OF
TUITION AND HOLDING OF SCHOLARSHIPS—(Continued)

Garrett, W. F., Greenwood.	Lightsey, L. M., Brunson.	Beneficiary
Graham, R. N., Hodges.	Peeples, M. L., Scotia.	Fripp, W. T., Tillman.
Muckenfuss, C. H., Hodges.	Rentz, N. G., Varnville.	Parnell, H. N., Gillisonville.
Payne, H. D., Ninety Six.	Riley, G. M., Garnett.	Kershaw County
Rasor, Andrew, Donalds.	Wiggins, E. C., Garnett.	Pay Tuition
Snead, C. B., Greenwood.		Holly, A. F., Jefferson.
Stallworth, W. H., Gaines.	Free Tuition	Nettles, H. E., Lugoff.
Warner, J. D., Greenwood.	Carter, R. E., Varnville.	Williams, E. B., Lancaster.
	Lawton, B. E., Garnett.	
Free Tuition	Miley, L., Brunson.	Free Tuition
Blake, R. S., Greenwood.	McCreer, J. C., Early Branch.	Guy, P. B., Camden.
Burnett, D. E., Greenwood.	Thomas, F. E., Hampton.	Johnstone, J. F., Liberty Hill.
Cothran, E., Greenwood.	Beneficiary	Rush, A. E., Camden.
Miller, W. H., Greenwood.	Bowers, H. A., Hampton.	
Roberts, W. J., Ninety Six.	Horry County	Beneficiary
Townsend, F. A., Ninety Six.	Pay Tuition	Richards, J. P., Liberty Hill.
	Derham, E. M., Greensea.	Trotter, J. W., Camden.
Beneficiary	Lewis, J. G., 2nd., Aymor.	
Allen, F. M., Greenwood.		Lancaster County
Martin, F. G., Ninety Six.	Free Tuition	Pay Tuition
Martin, G. C., Ninety Six.	Altman, D. M., Galivants Ferry.	Bailes, J. P., Fort Mill.
Proctor, W. G., Ninety Six.	Altman, H. S., Galivants Ferry.	Blackman, L. A., Heath Springs.
Woodle, H. A., Greenwood.	Long, J. M., Longs.	Cook, W. C., Lancaster.
Young, C. T., Greenwood.	Beneficiary	Cobb, J. O., Lancaster.
	Smith, S. T., Conway.	Timmons, E. D., Heath Springs.
Hampton County	Graham, J. P., Conway.	Timmons, L. C., Heath Springs.
Pay Tuition		
Gooding, P. H., Hampton R. 1.	Jasper County	Beneficiary
Lawton, A. S., Garnett.	Pay Tuition	Harris, O. P., Fort Mill.
Lawton, H. L., Lena.	Langford, T. A., Gillisonville.	King, J. M., Lancaster.

CLASSIFICATION OF STUDENTS AS REGARDS PAYMENT OF
TUITION AND HOLDING OF SCHOLARSHIPS—(Continued)

Patterson, C. E., Fort Mill.	Knight, A. J., Ware Shoals.	Non Tuition
Potts, R. C., Fort Mill.	Knight, O. J., Ware Shoals.	Dowling, J. A., Swansea.
Laurens County	Richbourg, S. E., Clinton	Miller, J. C., Lexington.
Pay Tuition.	Owens, J. C., Laurens.	Beneficiary
Boozer, W. M., Kinards.	Taylor, F. W., Fountain Inn.	Addy, C. S., Leesville.
Crisp, A. B., Mountville.	Wallace, N. L., Bryson.	Bachman, C. A., Swansea.
Clapp, W. J., Clinton.	Beneficiary	Roof, H. A., New Brookland.
Copeland, I. B., Renno.	McDaniel, G. E., Laurens, R. 4.	Wingard, L. E., Lexington.
Copeland, J. D., Renno.	Rogers, E. L., Gray Court.	Marion County
Clark, A. B., Gray Court.	Thomason, J. F., Gray Court.	Pay Tuition
Davis, W. G., Clinton.	Washington, W. H., Ware Shoals.	Ayers, E. E., Nichols.
Dial, F. A., Laurens.	Lee County	Bethea, J. P., Mullins.
Dunlap, J. H., Laurens.	Pay Tuition	Owens, C. A., Marion.
Dunlap, R. T., Laurens.	Betchman, H. B., Chapin.	Solomon, L., Marion.
Fuller, E. P., Laurens.	Fields, J. N., Lamar.	Wallace, H., Marion.
Gray, R. E., Gray Court.	Galloway, W. R., Lynchburg.	Non Tuition
Hunter, H. A., Clinton.	Krasnoff, L. I., Bishopville.	Baker, O. E., Nichols, R. 1.
Roper, C. P., Laurens.	Moore, W. E., Bishopville.	Hood, R. W., Mullins.
Roper, F. H., Laurens.	Non Tuition	LeGette, M. R., Centenary, R. 1.
Wilkes, E. H., Laurens.	McKenzie, W. J., Bishopville.	Mace, S. N., Centenary.
Wood, H. H., Princeton.	Lexington County	Marlboro County
Woodside, H. F., Laurens.	Pay Tuition	Pay Tuition
Free Tuition	Cullum, U. X., Batesburg.	Crosland, J. E., Bennettsville.
Armstrong, F. E., Laurens.	Dreher, C. A., Irmo.	Covington, O. F., Clio.
Cox, F. W., Gray Court.	Epting, C. V., Peak.	Crosland, A. D., Bennettsville.
Copeland, G. E., Renno.	Fink, B. L., Batesburg.	Crosland, M. E., Bennettsville.
Crisp, C. A., Laurens.	Hartley, R. L., Batesburg.	
Franks, C. H., Laurens.		

CLASSIFICATION OF STUDENTS AS REGARDS PAYMENT OF TUITION AND HOLDING OF SCHOLARSHIPS—(Continued)

Fletcher, H. W., McColl.	Coleman, Dan, Chappells.	Martin, L. I., Westminster.
Hinson, H. C., Tatum.	Hipp, R., Pomaria.	Mills, W. H., Clemson College.
McLaurin, E. B., McColl.	Singley, H. S., Prosperity.	Moss, J. H., Walhalla.
McLaurin, J. F., McColl.	Wallace, F. H., Kinards.	McMahan, J., Richland.
Odom, G. F., McColl.	Werts, R. B., Newberry, R. 3.	Newman, A. S., Clemson College.
Sherrill, L. H., Bennettsville.	Wise, G. S., Prosperity.	Ravenel, D., Clemson College.
Smith, D. R., Clio.	Watkins, B. W., Chappells.	Schroder, J. H. F., Walhalla.
Non Tuition	Non Tuition	Schilleter, J. C., Clemson College.
Atkinson, C. A., Blenheim.	Farrow, D. S., Newberry.	Stribling, W. J., Walhalla.
Crosland, T. M., Bennettsville.	Mills, C. S., Prosperity.	Verner, J. V., Richland.
Miller, James, Bennettsville.	Pugh, W. C., Prosperity.	Non Tuition
Beneficiary	Schumpert, F. E., Prosperity.	Clemens, J. F., Clemson College.
Fletcher, L. A., Bennettsville.	Wheeler, H. B., Prosperity.	Carter, R. W., Westminster.
Howell, L. M., Bennettsville.	Beneficiary	Cobb, B. C., Walhalla.
McCormick County	Hunter, J. H., Prosperity.	Dickson, W. P., Seneca.
Pay Tuition	Mills, O. B., Prosperity.	Dorn, A. M., Westminster.
Britt, W. E., McCormick.	Oconee County	England, W. L., Westminster.
Bussey, J. C., Parksville.	Pay Tuition	Martin, S. M., Clemson College.
Covin, J. O., Wellington.	Barnett, R. M., Clemson College.	Mulky, H. B., Westminster.
Walker, A. R., McCormick.	Barron, C. H., Seneca.	Shiver, N. C., Clemson College.
Beneficiary	Burgess, T. H., Seneca.	Wilbanks, W. C., Clemson College.
Link, S. T., Abbeville.	Cary, J. L., Seneca.	Beneficiary
Newberry County	Davis, C. R., Fair Play.	Fant, G. W., Walhalla.
Pay Tuition	Dorn, W. L., Westminster.	Moore, W. D., Seneca.
Boozer, Lindley, Prosperity.	Ellison, C. H., Seneca.	Orangeburg County.
Connor, J. T., Newberry, R. 3.	Harrison, G. A., Walhalla.	Pay Tuition
	Hunter, S. C., Westminster, R. 1.	Barton, W. P., Orangeburg.
		Dukes, W. A., Branchville.

CLASSIFICATION OF STUDENTS AS REGARDS PAYMENT OF TUITION AND HOLDING OF SCHOLARSHIPS—(Continued)

Evans, T. M., Elloree.	Koopman, J. J., Eutawville.	Non Tuition Boggs, E. S., Liberty.
Fairey, L. S., Branchville.	Lowman, P. I., Orangeburg.	Boggs, L. K., Liberty.
Gibson, J. W., Cordova.	Parler, S. B., Elloree.	Freeman, J. L., Pickens.
Gilmore, W. D., Orangeburg.	Sally, S. A., Orangeburg.	Kay, L. R., Easley.
Mackay, M. S., Orangeburg.	Thompson, E. A., Reevesville.	Merck, W. L., Calhoun.
Martin, N. W., Springfield.	Traxler, D. W., Bowman.	Richbourg, E. B., Liberty.
Miley, J. N., Branchville.	Vincent, C. E., Orangeburg.	Yongue, C., Pickens.
Patrick, G. B., Bowman.	Wolf, F. U., North.	
Robinson, E. E., Rowesville.	Beneficiary	Beneficiary
Smoak, L. G., Cope.	Funchess, W. H., Rowesville.	Arnold, L. W., Central.
Sally, H. B., Sally.	Hungerpillar, R. M., Orangeburg.	Jones, J. D., Liberty.
Savage, E. B., Eutawville.	Myers, M. S., Branchville.	Middleton, W. S., Clemson College
Simmons, K. B., Rowesville.	Rickenbaker, T. D., Bowman.	Richland County
Simmons, T. D., Rowesville.	Whittaker, W. L., Orangeburg.	Pay Tuition
Smith, T. S., Springfield.	Pickens County	Bates, H. G., Eastover.
Till, J. B., Orangeburg.	Pay Tuition	Coleman, R. L., Hopkins.
Till, J. F., Orangeburg.	Freeman, J. F., Pickens.	Coles, A. P., Columbia.
Till, N. R., Orangeburg.	Gaines, H. I., Central.	Childs, L. H., Columbia.
Tindall, L. N., Vance.	Hendricks, D., Easley.	Coleman, E. B., Eastover.
Thackston, L. P., Orangeburg.	Jones, E. C., Easley.	Chappell, L. C., Lykesland.
Thomas, R. R., Cope.	Kay, A. E., Easley.	Ford, C. R., Columbia.
Whetstone, O. F., Rowesville.	McHugh, J. B., Clemson College.	Hollowell, J. G., Columbia.
Weeks, J. L., Orangeburg.	Robertson, B. F., Clemson College.	Hollowell, J. R., Columbia.
Zeigler, T. J., Cope.	Smith, G. F., Liberty.	Hopkins, T. J., James Crossing.
Non Tuition	Tate, R. W., Norris.	Jones, H. J., Congaree.
Goodwin, W. M., Jameson.	Watkins, W. W., Easley.	Lachicotte, L. H., Columbia.
Inabinet, J. W., Bowman.	Williams, Ned, Easley.	Madden, L. E., Columbia.
Kennedy, H. H., Orangeburg.	Wyatt, W. F., Easley.	Price, G. D., Eastover.

Supplementary Reports

CLASSIFICATION OF STUDENTS AS REGARDS PAYMENT OF TUITION AND HOLDING OF SCHOLARSHIPS—(Continued)

Rawlinson, G. S., Eastover.	Non Tuition	Smith, R., Spartanburg.
Rice, J. A., Columbia.	Merchant, V. E., Chappells.	West, H. J., White Stone.
Robinson, H. B., Columbia.	Stanford, H., Leesville.	
Rodgers, W. S., Columbia.	Spartanburg County.	Non Tuition
Schoolbred, A., Columbia.	Ally, W. H., Spartanburg.	Bishop, W. G., Inman.
Stork, R. B., Columbia.	Baynard, W. L., Landrum.	Dula, A. H., Spartanburg.
Stork, R. C., Columbia.	Ballenger, A. R., Wellford.	Foster, G. E., Inman.
Walters, D. E., Columbia.	Cannon, W. S., Spartanburg.	Freeman, E. J., Spartanburg.
Yates, A. M., Lykesland.	Clyde, P. M., Spartanburg.	Freeman, R. A., Spartanburg.
Non Tuition	Dean, G. B., Spartanburg.	Harris, J. E., Spartanburg.
Driggers, B. F., Columbia.	Dunbar, J. Y., Spartanburg.	High, J. M., Campobello.
Eleazer, L. H., Chapin.	Fitzgerald, J. B., Spartanburg.	Hines, W. E., Spartanburg.
Kelly, H. C., Congaree.	Foster, H. M., Roebuck.	Mawbry, W. L., Spartanburg.
Killian, J. M., Columbia.	Friday, R. M., Spartanburg.	Sams, R. H., Spartanburg.
McCarley, J. F., Columbia.	Gray, W. H., Woodruff.	Shands, E. H., Campobello.
Beneficiary	Gwin, M. H., Woodruff.	Thorne, J. E., Chesnee.
Hoffman, M. B., Blythewood.	Hagood, W. M., Spartanburg.	Vaughn, T. L., Greer.
Langford, G. S., Blythewood.	Halstead, Thomas, Spartanburg.	Walker, H. C., Spartanburg
Rawl, E. H., Columbia.	Heffner, L. B., Spartanburg.	Beneficiary
Smith, M. C., Hopkins.	Hendricks, T. G., Duncan.	Carver, W. A., Fairforest.
Caluda County	Hines, J. E., Spartanburg.	Finger, B. L., Fingerville.
Pay Tuition	Johnson, H. L., Spartanburg.	Morgan, T. W., Wellford.
Coleman, J. V., Silver Street.	Kirkpatrick, J. W., Pacolet.	Odell, J. H., Spartanburg.
Kempson, J. M., Silver Street.	Manning, T. C., Spartanburg.	Smith, C. D., Spartanburg.
Quattlebaum, C. A., Ridge Springs.	Sams, M. W., Spartanburg.	
Waters, P. B., Saluda.	Scruggs, J. L., Spartanburg.	Sumter County
Wise, P. N., Batesburg.	Smith, A. P., Pauline.	Pay Tuition
		Brown, J. B., Oswego.
		Dinkins, J. D., Sumter.

CLASSIFICATION OF STUDENTS AS REGARDS PAYMENT OF
TUITION AND HOLDING OF SCHOLARSHIPS—(Continued)

Dwight, R. C., Wedgeville.	Crawford, E. L., Jonesville.	Non Tuition Steele, H., Kingstree.
Emmanuel, E. H., Bowden.	Fowler, W. W., Jonesville.	Beneficiary McKnight, L., Andrews.
Pitts, L. A., Sumter.	Haas, H. P., Union.	
Robinson, M. M., Oswego.	Jeffries, E. E., Union.	York County
Ryan, F. R., Wedgeville.	Jeter, M. C., Santuc.	Pay Tuition
Ryan, M. S., Wedgeville.	Langston, J. L., Buffalo.	Blankenship, A. S., Fort Mill.
Sanders, C. W., Hagood.	Littlejohn, B. C., Jonesville.	Brice, R. W., York, R. 4.
Truluck, J. P., Motbridge.	Vanderford, F. M., Union.	Byers, W. B., Rock Hill.
Wells, W. R., Sumter, R. 5.	Young, J. L., Union.	Campbell, S. W., Tirzah.
Wright, E. D., Wedgefield.		Faires, M. S., Rock Hill.
Non Tuition	Non Tuition	Gettys, E. F., York, R. 7.
Cain, O. W., Sumter, R. 2.	Harris, H. S., Union.	Kinard, J. P., Rock Hill.
Hammond, J. A., Sumter.	Howell, R. E., Buffalo.	Logan, F. R., York.
Mays, T. P., Mayesville.	McWhirter, C. L., Jonesville.	Love, Wm. A., McConnellsville.
Mellett, R. S., Sumter, R. 3.	Rice, S. C., Union.	Mackorell, T. M., York.
Parker, J. M., Sumter.	Williams, E. W., Jonesville.	Nichols, J. L., Rock Hill.
Randle, M. B., Sumter.	Beneficiary	Quinn, J. W., York.
Truluck, T. D., Lynchburg.	Bishop, R. T., Sedalia.	Poe, O. S., Rock Hill.
Beneficiary	Jeter, H. D., Santuc.	Smarr, R. G., Bullock Creek.
Dwight, F. M., Wedgeville.	Murphy, W. B., Union.	Stewart, J. M., Rock Hill.
Kolb, R. F., Sumter.	Thornton, M., Lockhart.	Smith, E. W., Hickory Grove.
Ramsey, W. H., Wedgeville.	Williamsburg County.	Wray, A. F., York.
Ryan, J. H., Wedgeville.	Pay Tuition	Whiteside, H. S., Hickory Grove.
Union County	Burgess, J. K., Kingstree.	
Pay Tuition	Davis, I. E., Salters Depot.	Non Tuition
Betsil, J. L., Union.	McCullough, T. G., Kingstree.	Bratton, R. B., McConnellsville.
Calvert, B. A., Jonesville.	O'Bryan, M. B., Heineman.	Draffin, J. W., Leslie.
Calvert, L. F., Jonesville.	Rhem, C. F., Rhems.	Erwin, R. M., Fort Mill.
	Snow, J. J., Henry.	Frew, W. L., Rock Hill.

CLASSIFICATION OF STUDENTS AS REGARDS PAYMENT OF
TUITION AND HOLDING OF SCHOLARSHIPS—(Continued)

Fudge, B. R.,
Rock Hill.
Garrison, F. B.,
York, R. 3.
Plexico, P. G.,
Rock Hill.
Poag, C. W.,
Rock Hill.
Stone, O. G.,
Clover.

Walsh, J. N.,
York.
Beneficiary
Barnett, J. L.,
Clover.
Erwin, W. J.,
Fort Mill.
Grier, W. H.,
Fort Mill.

Hayes, S. J.,
Fort Mill.
Horton, L. F.,
Sharon.
Robinson, H. E.,
Sharon.

Non Residents

Alford, H. P.,
Rowland, N. C.
Bond, H. P. N.,
Savannah, Ga.
Brown, C. M.,
Charlotte, N. C.
Bryan, C. J.,
Dewey Rose, Ga.
Colbert, W. C.,
Ardmore, Okla.
DeLoach, C. E.,
Claxton, Ga.
Dunham, F. E.,
Palm Beach, Fla.
Graham, G. B.,
Charlotte, N. C.
Hadlow, F. N.,
Jacksonville, Fla.
Hagood, E. W.,
Jacksonville, Fla.
Henriquez, C. I.,
Jamaica, B. W. I.
Jackson, T. S.,
Thomason, Ga.

Lucas, T. T.,
Charlotte, N. C.
Marler, R. H.,
Winston Salem,
N. C.
Melson, H. R.,
Carrollton, Ga.
Miller, H. E.,
Claxton, Ga.
McDonald, W. S.,
Gainesville, Fla.
McGee, G. W.,
Houston, Texas.
McGougan, J. B.,
Tabor, N. C.
Redfern, W. M.,
Wadesboro, N. C.
Robbins, J. R.,
Marion, Ala.
Schenck, J. R.,
Greensboro, N. C.
Snead, A. K.,
Carrollton, Ga.
Spoon, L. P.,
Pontiac, Mich.

Tate, H. F.,
Union Mills, N. C.
Taylor, F. E.,
Macon, Ga.
Taylor, T.,
Savannah, Ga.
Thompson, R. L.,
Hallsboro, N. C.
Till, H. F.,
Jacksonville, Fla.
Townsend, D. E.,
McDonalds, N. C.,
Vincient, J. C.,
Macon, Ga.
Vogel, T. R.,
Washington, D. C.
White, V. R.,
Melbane, N. C.
Williams, J. S.,
Washington, D. C.
Williams, M. H.,
Washington, D. C.
Yeomans, M. S.,
Dawson, Ga.

Report of The Treasurer For The Fiscal Year July 1, 1919, to June 30, 1920

RESOURCES

DR.

Income—

Privilege Fertilizer Tax -----	\$313,472.54	
Interest on Clemson Bequest -----	3,512.36	
Interest on Landscrip -----	5,754.00	
Morrill and Nelson Fund (U. S.) -----	25,000.00	
Tuition from Cadets -----	17,472.83	
Sales, Interest, Rents, etc. -----	23,210.84	\$388,422.57

EXPENDITURES

CR.

Public Service—

Scholarships and Advertisements ----	\$ 13,151.32	
Coast Experiment Station -----	2,973.35	
Crop Pest Commission -----	4,329.88	
Fertilizer Analysis -----	12,250.06	
Fertilizer Inspection -----	29,445.94	
Miscellaneous Public Service -----	1,292.58	
Pee Dee Experiment Station -----	3,832.58	
S. C. Experiment Station -----	2,671.84	
Veterinary Inspection -----	5,100.55	\$ 75,048.10

College Operating Expenses—

Salaries, Labor, Coal, Materials, etc. --		\$214,470.51
Equipment for Teaching -----	\$ 10,672.08	
Improvements and Additions to Plant--	32,774.08	43,446.16
Building Sinking Fund for Hospital and Tile Floor in Mess Hall -----	55,457.80	55,457.80
Total -----		\$388,422.57

The following is a more detailed statement, showing the Expenditures and Cost of the Public State Work, and each Department and Division of the College, under the items appropriated by the Board of Trustees:

PUBLIC STATE WORK DEPARTMENT

Scholarships and Advertisements—

Scholarships and Advertisements -----\$ 13,151.32—\$ 13,151.32

Coast Experiments—

Salary of Superintendent -----	\$ 1,586.62
Forestry Experiments -----	61.75
Orchard and Vineyard Experiments ---	82.43
Hog Grazing Experiments -----	30.85
Labor on Ornamental Grounds -----	22.50
Labor -----	188.23
Repairing Fences and Sheds -----	138.38
Tools and Implements -----	100.98
Farm and Shop Equipment -----	126.39
Materials for Extending Vineyards and Orchards -----	68.66
Beef Cattle for Grazing Tests -----	336.94
Experimental Pastures -----	104.62
Installing Power Plant and Wiring House and Barn -----	125.00—\$ 2,973.35

Crop Pest Commission—

Salaries -----	\$ 2,870.00
Labor -----	560.00
Expenses of Entomologist and Assist'ts	730.11
Office Supplies, Telegrams, etc. -----	169.77—\$ 4,329.88

Fertilizer Analysis—

Salaries -----	\$ 8,680.00
Apparatus -----	275.79
Chemicals -----	861.13
Gasoline -----	400.00
Record Books, Postage Stationery ---	139.45
Incidentals -----	47.31
Labor—Janitor -----	240.00
Extra Help in Laboratory and Office --	300.00
Emergency Supplies, Labor, etc. -----	558.86
Traveling Expenses -----	147.52
Extra Services (Foy and Freeman) ---	600.00—\$ 12,250.06

Fertilizer Inspection—

Salaries -----	\$ 3,723.92
Labor—Janitor -----	515.00
Tags and Printing -----	11,864.50
Pay and Travel of 13 Inspectors -----	11,581.65
Printing and Mailing Weekly Bulletins -----	135.37
Freight, Postage and Incidentals -----	686.94
Legal Services -----	250.00
Condensed Fertilizer Bulletin -----	512.92
Inspector's Cases, Trunks, etc. -----	120.00
Office Furniture and Fixtures -----	42.00
Expenses of Commission -----	13.64—\$ 29,445.94

Miscellaneous State Work—

Contrib. to Expenses Local School -----	\$ 550.00
Summer School -----	328.40
Salary Agricultural Editor (Bryan) --	174.96
State Fair Exhibit -----	239.22—\$ 1,292.58

Pee Dee Experiment Station—

Salary Superintendent -----	\$ 1,586.62
Graduate Student Assistant -----	150.00
Horticultural Work -----	98.66
Tools and Implements -----	136.53
Hog Pastures -----	29.31
Rat Proof Corn Barn -----	883.59
Office and Seed Storage Room -----	947.87—\$ 3,832.58

South Carolina Experiment Station—

Travel to Sub-stations -----	\$ 431.74
Attending Conventions -----	116.39
Travel and Other Expenses Incident to War Emergency Board of Plant Pathology -----	87.13
Publication of Bulletins -----	172.50
Breeding Projects -----	1,864.08—\$ 2,671.84

Veterinary Inspection—

Salaries -----	\$ 4,041.03
Travel, Printing and Office Equipment -----	872.95
Graduate Student Assistant -----	186.57—\$ 5,100.55

Public State Work Expenditures ----- \$ 75,048.10

ACADEMIC DEPARTMENT

English Division—

Stationery, etc. -----	\$	11.25	
Dictionary and Stand -----		16.00—\$	27.25

History Division—

Periodicals for Classroom -----	\$	36.25	
Maps and Reference Books -----		58.47—\$	94.72

Mathematics Division—

Repairs to Furniture and Equipment--	\$.40—\$.40
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Office and Unclassified Division—

Labor—Two Janitors -----	\$	644.75	
Chalk, Erasers, Brooms, Stationery ---		135.86—\$	780.61

Physics Division—

Laboratory Supplies and Repairs -----	\$	139.33	
Apparatus for Mechanics and Heat ---		146.57	
Apparatus for Light and Sound -----		62.47	
Appar. for Elec. and Magnetism -----		340.73	
Astronomical Telescope -----		301.98	
Sextant, Chart, etc. -----		34.00	
Instrument Cases -----		70.50—\$	1,095.58

Salaries—

Salaries—Professors and Assistants --	\$	35,828.15—\$	35,828.15
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Departmental Expenditures -----		\$	37,826.71
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AGRICULTURAL DEPARTMENT

Agricultural Education Division—

Typewriter -----	\$	65.53	
Office Furniture -----		224.50	
Classroom Equipment -----		143.86	
Mimeograph Machine -----		85.00	
Laboratory Equipment -----		198.00—\$	716.89

Agronomy Division—

Cement, Gasoline, Oil, etc. -----	\$	209.62	
Seed, Score Cards, etc. -----		89.32	
Repairs and Parts for Machines -----		22.00	
Materials for Class Work -----		100.00	
Cement, Gasoline, Oil, etc. -----		99.17	
Laboratory Equipment -----		200.00	
Office Equipment -----		50.00	
Machines for Farm Laboratory -----		1,173.56—\$	1,943.67

Animal Husbandry Division—

Repairs to Fences -----	\$	200.00	
Labor, Fertilizer, etc. -----		500.00	
Live Stock Registration Book -----		25.00	
Lantern Slides -----		40.00	
Classroom Equipment -----		81.48	
Purebred Swine -----		4,074.04	\$ 5,320.52

Botany and Bacteriology Division—

Botanical Publications -----	\$	97.21	
Glassware and Laboratory Supplies --		405.86	
Collecting Materials -----		42.69	
Graduate Student Assistant -----		250.00	
Repairs and Replacements -----		81.30	
Microscopes -----		399.29	
Physiological Apparatus -----		245.65	
Student Lockers -----		100.00	
Microscope Cabinet -----		21.85	
Timber Treatment Plant -----		55.50	\$ 1,699.35

Dairy Division—

Janitor and Janitor Supplies -----	\$	367.45	
Freight and Repairs -----		36.73	
Glassware and Chemicals -----		116.22	
Labor and Operating Expenses -----		50.08	
Upkeep of Fences -----		147.60	
Small Laboratory Equipment -----		68.77	
Two Butter Moisture Testers -----		44.75	
Calf Barn Equipment -----		526.74	\$ 1,358.34

Entomology and Zoology Division—

Class and Laboratory Materials -----	\$	98.54	
Labor -----		105.19	
Repairs to Instruments -----		97.67	
Spray Apparatus -----		99.61	
Part Payment—Refrigerating Plant --		75.00	\$ 476.01

Geology and Mineralogy Division—

Chemicals and Laboratory Supplies and Repairs -----	\$	56.61	
Labor -----		6.01	
Photographic Maps -----		53.49	\$ 116.11

Horticultural Division—

Labor -----	\$	1,701.13	
Fertilizer -----		98.58	
Seeds, Plants, etc. -----		199.18	

Greenhouse Supplies and Repairs -----	96.98	
Coal for Greenhouse -----	90.82	
Spray Apparatus and Materials -----	74.35	
Feed for Two Mules -----	296.64	
Tools for Class Use -----	74.13	
Replacing Plants in Greenhouse -----	99.33	
Chairs and Tables for Laboratory -----	75.00	
Blackboard for Class Use -----	25.00—\$	2,831.14

Office and Unclassified Division—

Janitor -----	\$	338.20	
Janitor's Supplies -----		148.91	
Gasoline -----		159.10	
Attendance on Conventions, etc. -----		19.78	
Stationery, Postage, etc. -----		625.00	
Upkeep of Building -----		148.89	
Stand for Mimeograph Machine -----		17.25	
Shades -----		76.50	
Filing Cases -----		26.75—\$	1,560.38

Poultry Husbandry Division—

Labor -----	\$	450.00	
Feed -----		248.77	
Supplies -----		143.06—\$	841.83

Soils Division—

Supplies and Small Apparatus -----	\$	98.93	
Balances, Digesting Shelves, Shaking Apparatus, etc. -----		791.96	
Small Apparatus -----		398.33—\$	1,289.22

Veterinary Science Division—

Janitor and Extra Labor -----	\$	383.00	
Coal -----		30.98	
Laboratory Supplies for Class Work --		100.00	
Animals for Dissecting -----		73.93	
Repairs and Replacements of Appar. --		49.35	
Veterinary Journals -----		3.00—\$	640.26

Salaries—

Salaries—Professors and Assistants --	\$	32,415.19—\$	32,415.19
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Departmental Expenditures -----			\$ 51,208.91
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CHEMICAL DEPARTMENT

Chemistry Division—

Apparatus -----	\$	940.91	
Chemicals and Supplies -----		449.75	
Gasoline -----		250.00	
Books, Journals and Bindings -----		83.40	
Repairs to Apparatus -----		170.13	
Incidentals -----		98.56	
Labor—Janitor -----		215.00	
Repairs to Plumbing -----		49.40	\$ 2,257.15

Salaries—

Salaries—Professors and Assistants --	\$	8,689.24	—\$ 8,689.24
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Departmental Expenditures -----			\$ 10,946.39
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ENGINEERING DEPARTMENT

Civil Engineering Division—

Class Materials, etc. -----	\$	39.72	
Repairs and Replacements to Instru- ments and Furniture -----		37.52	
Additional Cases in Instrument Room -----		100.00	
Cement Tools -----		49.71	
Equipment for Testing Road Materials -----		500.00	
Freight on Nash Truck -----		286.34	
Body for Nash Truck -----		30.00	\$ 1,043.29

Drawing Division—

Materials as ink, paper, etc. -----	\$	60.01	
Repairs and Renewals of Apparatus --		60.00	
Expenses of Architectural Contest ---		25.00	
Subscr. to Architectural Magazines --		55.00	
Reference Books -----		146.39	
Labor and Lights -----		70.00	\$ 416.40

Electrical Engineering—

Junior Laboratory Supplies -----	\$	50.17	
Senior Laboratory Supplies -----		60.00	
Repairs and Renewals -----		104.98	
Class and Lab. Notes for Students -----		29.95	
Student Assistant -----		96.75	
Freight on Machinery -----		38.34	
Machine Bases and Water Rheos -----		21.60	
Scott and Current Transformers -----		200.00	

Rheostats and Circuit Breakers -----	194.84	
Instruments -----	400.20	
Transformers -----	192.00	
Magneto Tachometer -----	140.00—\$	1,528.83
Forge and Foundry Divison—		
Labor -----	\$ 600.00	
Iron and Steel for Forge -----	296.77	
Repairs and Replacements to Ma- chinery and Apparatus -----	67.66	
Supplies as Plumbago, Flour, etc. ----	49.45	
Coal for Forge -----	300.00	
Pig Iron and Brass for Foundry -----	150.00	
Moulding Sand -----	57.00	
Coke for Foundry -----	22.85	
Belt for Fan -----	72.51—\$	1,616.24
Machine Shop Division—		
Labor -----	\$ 548.33	
Repairs, Replacements of Tools, etc. -	102.78	
Shop Material -----	246.63	
Attachments for Machines -----	232.59—\$	1,130.33
Mechanical Engineering Division—		
Laboratory Supplies -----	\$ 48.78	
Gasoline -----	15.00	
Data Blanks -----	24.90	
Repairs and Replacements -----	22.54	
Planimeter -----	41.22	
Extensometer -----	160.00—\$	312.44
Office and Unclassified Division—		
Labor—Janitor -----	\$ 480.00	
Office and Janitors Supplies -----	201.39	
Upkeep of Engineering Building -----	31.27	
Attendance on Conventions -----	95.00	
Incidentals -----	10.00	
Lantern for Department -----	52.20—\$	869.86
Wood Shop Division—		
Labor -----	\$ 522.00	
Supplies, Lumber, Hardware, etc. ----	460.14	
Repairs and Replacements of Tools --	199.96	
Universal Saw and Countershaft -----	300.00	
Bench Hand Joiner and Planer -----	200.00	
Oil Stone Grinder -----	300.00—\$	1,982.10

Salaries—

Salaries—Professors and Assistants --\$ 29,903.74—\$ 29,903.74

Departmental Expenditures ----- \$ 38,803.23

MILITARY DEPARTMENT

Office and Unclassified Division—

Postage, Stationery, Record Books ---\$	388.19	
Military Supplies -----	132.29	
Upkeep of Band -----	62.63	
Sabres for Cadet Officers -----	379.32	
Rebuilding Target Range -----	149.00	
Classroom Equipment, Maps, etc. ----	13.91	
Accounts of Lyon & Healy and Capt. McFeely -----	20.80—\$	1,146.14

Salaries—

Salaries—Commandant and Assistants-\$ 5,760.36—\$ 5,760.36

Departmental Expenditures ----- \$ 6,906.50

TEXTILE DEPARTMENT

Carding and Spinning Division—

Cotton for Class Use -----\$	424.45	
Repairs and Supplies -----	85.69	
Materials for Cotton Grading -----	200.00	
Yarn Testing Machine -----	295.72—\$	1,005.86

Dyeing Division—

Chemicals and Dyestuffs -----\$	198.82	
Glassware and Laboratory Materials --	73.01	
Miscellaneous Small Lab. Apparatus --	115.74—\$	387.57

Office and Unclassified Division—

Janitor and Engineer -----\$	612.50	
Gasoline -----	22.93	
Stationery, Postage, etc. -----	43.00	
Student Labor -----	65.00	
Mill Boy Helper -----	245.30	
Textile Periodicals -----	10.00	
Office Desk -----	40.00	
Mimeoscope -----	40.00	
Freight on Donated Machinery -----	100.00—\$	1,178.73

Weaving Division—

Warp and Filling Yarn -----	\$	447.96	
Loom Supplies and Repairs -----		85.91	
Knitting Yarns -----		14.00—	\$ 547.87

Salaries—

Salaries—Director and Assistants ----	\$	6,852.27—	\$ 6,852.27
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Departmental Expenditures -----

\$ 9,972.30

PUBLIC UTILITIES DEPARTMENT**Campus Division—**

Labor -----	\$	1,993.30	
Fertilizer and Manure -----		436.53	
Seeds, Plants and Trees -----		149.37	
Feed and Upkeep of Two Mules -----		382.99	
Tools and Machines -----		118.61	
Five Flights Cement Steps -----		500.00	
Six Hundred Feet of Sidewalk -----		500.00	
Coping and Drainage of College Road -		600.00—	4,680.80

Construction and Repair Department—

Office Supplise, Postage, Files, ect. ---	\$	48.47	
Repairs and Renewals of Apparatus --		15.14	
Tools and Implements -----		45.13	
Necessary Repairs to Public Buildings		8,763.75	
Miscellaneous Unforeseen Repairs to Public Buildings -----		578.91	
Salary Superintendent -----		1,637.06	
Partition and Shelving, Room No. 2, Agricultural Hall -----		73.20	
Coping, Clemson Grave Lot -----		250.00	
Additional Basement, Physics Room --		833.17	
Completion of Addition to Engineering Building -----		7,800.00	
Partition in Classroom, Dairy -----		85.37	
Lumber Room (Lumber Shed) -----		57.95	
Moving and Adapting School House for Residence -----		500.00	
Poultry Breeding House -----		1,300.00	
Calf Barn, Dairy Division -----		3,518.83	
Hog Barn, Animal Husbandry Div. ---		2,870.78	
Completion of Manure Shed -----		44.45	
Additional Room, Gantt -----		701.00	

Brick and Cement Well Top, Mills ---	115.00	
Base and Moulding, Pickett -----	35.00	
Ceiling About Chimney and Closet, Goodman -----	31.00	
New Kitchen, Moore -----	175.00	
Completion and Repairs, Carey -----	240.30	
Screens, Servant House and Ceiling, McFeely -----	68.00	
Completion of New Work Underway --	1,176.17	
Ladies Sitting Room, 2nd Floor, Hotel	500.00	
Completion of Hog Pastures -----	492.33	\$ 31,956.01

Heat, Light and Water Division—

Labor -----	\$ 5,432.58	
Materials, Repairs and Extensions ----	1,700.29	
Coal -----	12,997.17	
Repairs to Steam Line, Eng. Bldg. ---	198.41	
Renewals Steam Line to Kitchen ----	79.38	
Lightning Arrestors -----	48.60	
Carload of Poles -----	200.00	
Repairs to Main Sewers -----	100.00	
Completion Filter Plant -----	1,500.00	
Fence About Filter Basins -----	250.00	\$ 22,506.43

Roads, Sidewalks and Hauling—

Labor -----	\$ 821.06	
Top Soiling -----	800.00	
Salary of Superintendent -----	1,456.00	\$ 3,077.06

Watchmen Division—

Salary—Watchman -----	\$ 801.49	
Supplies -----	24.27	\$ 825.76

Departmental Expenditures -----		\$ 63,046.06
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MISCELLANEOUS DEPARTMENT**Hospital Division—**

Utensils, Bedding, etc. -----	\$ 115.10	\$ 115.10
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Library Division—

Magazines -----	\$ 253.00	
Supplies, Cards, Stationery, etc. ----	74.62	
Membership Dues to Societies -----	29.25	
Salaries -----	1,532.00	
Clock -----	33.97	
Books -----	992.35	\$ 2,915.19

Miscellaneous Items—

Expenses of Trustees and Board of Visitors -----	\$ 1,703.03
Insurance -----	5,335.51
Contingent and Incidental Expenses --	2,777.84
Ministers -----	1,973.38
Y. M. C. A. Secretary -----	500.00
Annual Report to Legislature -----	82.24
Lyceum Lectures and Entertainments--	200.00
Commencement Expenses -----	244.90
Trustee Medal -----	25.00
Supplies for Museum -----	15.00
Upkeep to Telephone System -----	149.33
Telephone and Telegraph Operator ---	600.00
Chapel Lecture Series -----	50.00
Membership of College in Nat. Assoc'n	69.00
Miscellaneous Running Expenses ----	216.70
Examination Booklets -----	106.83
Memorial Tablets (2) -----	450.00
Student Recreation -----	144.10
Salary Magistrate -----	56.00
College Catalog -----	550.00
Lewis Homestead Site -----	1,700.00
Hotel Equipment -----	746.31
Memorial Tablet (Dr. Mell) -----	50.00
Building Sinking Fund -----	55,457.80—\$ 73,202.97

President's Office Division—

Stamps, Stationery, Supplies, etc. ----	\$ 1,049.44
Traveling Fund (Conventions, etc.) --	553.37
Emergency Labor in Office -----	201.50
Salaries -----	10,418.80—\$ 12,223.11

Treasurer's Office Division—

Record Books, Stationery, Postage ---	\$ 774.85
Emergency Assistance -----	276.34
Premium on Treasurer's Bond -----	62.50
Treasurer's Annual Report -----	240.00
Salaries -----	4,809.98
Steel Safe for Vault -----	44.33—\$ 6,208.00

Departmental Expenditures -----

\$ 94,664.37

SUMMARY

Expenditures by Departments

Public State Work -----	\$ 75,048.10
Academic -----	37,826.71
Agricultural -----	51,208.91
Chemical -----	10,946.39
Engineering -----	38,803.23
Military -----	6,906.50
Textile -----	9,972.30
Public Utilities -----	63,046.06
Miscellaneous -----	94,664.37—\$388,422.57

Report of State Bank Examiner

GENERAL REPORT

The accounts of Clemson Agricultural College were carefully examined and audited. It appears that all funds have been administered with economy consistent with efficiency.

While the total of funds handled is large, a comparatively small part was expended for strictly college activities. The college is really a highly technical institution requiring high priced experts and expensive machinery and equipment.

During the period audited, expenditures for the college proper amounted to \$388,422.57, including improvement, additions to plant and equipment for teaching. Public service (Extension Work) shows an expenditure of \$224,445.74 and Research (Hatch and Adams Fund) \$34,685.62.

The College Treasurer handled during the year \$258,814.56 of Cadet Funds, and Students' deposits amounting to \$77,640.91. These latter funds are administered for the sole use and benefit of the students.

An account to which attention is directed, under the general head of "Re-investment", is of special interest, in as much as the general balance in this account goes to swell the general expenditures of the college, without actually doing so. For convenience the college carries a number of side accounts under the general head of "Re-investment Accounts". Most of these accounts represent merely turn-overs with no new income to the college resulting therefrom. Our exhibit "Re-investment Account" merely shows the standing of these accounts.

The items "Reserve Fund" represents the money necessary to carry the college during the first half of its fiscal year, July 1 to December 31, during which time there are practically no receipts from the fertilizer tax.

The total receipts under "Re-investment" are \$300,698.41, while the total expenditures were \$316,184.29.

The clerical condition of the Treasurer's office is excellent, the books free from errors in final balances.

The funds of the college are appropriated by the trustees on the "Budget System", in which careful consideration is given to every item asked for.

In conclusion I desire to thank the College Treasurer, S. W. Evans, and his help, for their kindness and readiness to aid in every way a thorough audit of the institution.

JAMES H. CRAIG,

State Bank Examiner.

EXHIBIT "A".

COLLEGE ACCOUNT

RESOURCES

Privilege Fertilizer Tax -----	\$313,472.54
Interest on Clemson Bequest -----	3,512.36
Interest on Landscript -----	5,754.00
Morrill and Nelson Fund (U. S.) -----	25,000.00
Tuition from Cadets -----	17,472.83
Sales, Interest, Rents, etc.:	
Breakage -----	\$ 301.51
Heat, light and water -----	2,355.65
Interest -----	8,420.41
Rents -----	4,399.27
Miscellaneous -----	7,734.00— 23,210.84
Total -----	\$388,422.57

EXPENDITURES

Public State Work Department—

Scholarships and advertisements -----	\$ 13,151.32
Coast Experiment Station -----	2,973.35
Crop Pest Commission -----	4,329.88
Fertilizer Analysis -----	12,250.06
Fertilizer Inspection -----	29,445.94
Miscellaneous Public Service -----	1,292.58
Pee Dee Experiment Station -----	3,832.58
S. C. Experiment Station -----	2,671.84
Veterinary Inspection -----	5,100.55— \$ 75,048.10

Academic Department—

Expense and Equipment -----	1,998.56
Salaries College -----	25,603.61
Salaries Morrill and Land Scrip -----	10,224.54— 37,826.71

Agricultural Department—

Expense and Equipment -----	18,793.72
Salaries College -----	26,490.27
Salaries Morrill and Land Scrip -----	5,924.92— 51,208.91

Chemical Department—

Expense and Equipment -----	2,257.15
Salaries College -----	5,404.30
Salaries Morrill and Land Scrip -----	3,284.94— 10,946.39

Engineering Department—

Expense and Equipment -----	8,899.49	
Salaries College -----	19,375.80	
Salaries Morrill and Land Scrip -----	10,527.94	38,803.23

Military Department—

Expense and Equipment -----	1,146.14	
Salaries College -----	5,760.36	6,906.50

Textile Department—

Expense and Equipment -----	3,120.03	
Salaries College -----	6,060.61	
Salaries Morrill and Land Scrip -----	791.66	9,972.30

Public Utilities Department—

Campus Division -----	4,680.80	
Construction and Repairs -----	31,956.01	
Heat, light and water -----	22,506.43	
Roads, sidewalks, etc. -----	3,077.06	
Watchman, salary and supplies -----	825.76	63,046.06

Miscellaneous Departments—

Hospital -----	115.10	
Library Supplies -----	1,383.19	
Library Salaries -----	1,532.00	
Miscellaneous items -----	17,745.17	20,775.46

Building Sinking Fund (Transfer) --- 55,457.80

President's Office:

Expenses and Supplies -----	1,804.31	
Salaries College -----	10,418.80	12,223.11

Treasurer's Office:

Expenses and Supplies -----	1,398.02	
Salaries College -----	4,809.98	6,208.00

Total Expenditures (College) ----- \$388,422.57

EXHIBIT "B"**ADAMS AND HATCH FUNDS****RESOURCES**

Balance Farm Products, July 1, 1919 ---\$		\$ 3,857.44
Received Adams Fund -----	15,000.00	
Received Hatch Fund -----	15,000.00	
Received Farm Products -----	3,047.61	33,047.61
Total -----		\$ 36,905.05

EXPENDITURES

Salaries -----	20,457.72	
Labor -----	5,592.51	
Publications -----	415.76	
Postage and Stationery -----	836.31	
Freight and Express -----	228.95	
Heat, light, water and power -----	214.75	
Chemicals and laboratory supplies -----	591.34	
Seeds, plants and sundry supplies -----	1,056.78	
Fertilizer -----	1,690.20	
Feed Stuff -----	1,375.33	
Library -----	282.19	
Tools, machinery and appliances -----	780.72	
Furniture and fixtures -----	164.27	
Scientific apparatus and specimens -----	721.38	
Live stock -----	20.00	
Traveling expenses -----	179.65	
Buildings and land -----	77.76—	34,685.62
		<hr/>
July 1, 1920 balance -----		2,219.43
		<hr/>
Total -----		\$ 36,905.05

EXHIBIT "C"

EXTENSION WORK (SMITH-LEVER FUNDS)

Balance July 1, 1919, to cover unpaid accounts -----	\$ 6,288.49
Federal Appropriations -----	\$117,222.87
State Appropriations -----	67,994.99— 185,217.86
	<hr/>
Appropriation by counties -----	39,227.88
	\$230,734.25

DISBURSEMENTS

Salaries -----	\$154,000.22
Labor -----	660.23
Publications -----	4,042.79
Postage, telegraph, freight, etc. -----	2,734.26
Stationery and small printing -----	7,354.71
Heat, light and water -----	664.86
Miscellaneous supplies -----	391.56
Library -----	135.06
Tools, machinery, etc. -----	54.63
Furniture and fixtures -----	2,470.19
Scientific apparatus -----	393.27
Travelling expenses -----	51,204.46
Contingent expenses -----	339.50—\$224,445.74

Vouchers issued on balance above and paid after July 1, 1919 -----	6,288.49
	<hr/>
	\$230,734.23

Included in the above are vouchers aggregating \$39,227.88 recorded in side account by Treasurer but paid by the counties direct.

EXHIBIT "D"

CADET FUND

	Receipts	Expenditures
Balance July 1, 1919 -----	\$ 10,015.33	\$
From Subsistence -----	152,367.99	155,074.14
From Heat, Light and Water -----	12,477.02	12,474.42
From Laundry -----	14,748.88	14,748.88
From Hospital -----	6,026.00	7,259.49
From Incidentals -----	4,745.00	7,332.34
From Uniforms -----	52,933.25	52,756.05
From laboratory fees -----	764.50	764.50
From diploma fees -----	651.00	669.59
From Breakage -----	2,536.00	2,536.00
From Miscellaneous -----	1,549.59	1,841.15
July 1, 1920 Balance -----		3,358.00
	<hr/>	<hr/>
	\$258,814.56	\$258,814.56

STUDENTS' DEPOSIT ACCOUNT

Balance July 1, 1919 -----	\$ 641.67
Deposits -----	76,999.24—\$ 77,640.91
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DISBURSEMENTS

Checks paid -----	\$ 77,556.62
Balances -----	84.29—\$ 77,640.91
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EXHIBIT "E"

REINVESTMENT ACCOUNT

	Cr. Bal. July 1, '19	Dr. Bal. July 1, '19	Expendi- tures	Receipts	Cr. Bal. June 30, '20	Dr. Bal. June 30, '20
Animal Husbandry	\$	\$ 2,061.88	\$ 13,717.39	\$ 5,646.88	\$	\$ 10,132.39
Beef Cattle	1,469.26		4,838.52	3,369.26		
Cadet Breakage	162.76		1,294.66	1,131.90		
Board of Health		57.45	456.00	465.05		48.40
Coast Station		1,532.16	2,819.45	2,472.76		1,878.85
Creamery			15,200.64	11,877.66		3,322.98
Dairy		7,648.02	17,126.05	16,508.64		8,265.43
Educ. Disab. Soldiers			1,719.88	5,462.84	3,742.96	
Engineering Bldg.	158.50				158.50	
Farm		1,887.86	20,567.62	17,220.72		5,234.76
College Hauling	1,679.26		4,241.05	2,561.79		
Heat, Light & Water			2,392.21	2,392.21		
Hog Cholera Serum ..	363.33		55,044.97	54,667.74		13.90
New Hospital	1.34				1.34	
Hotel		593.19	16,102.01	16,664.33		30.87
Insurance Sink. Fund		3,147.12		9,582.63	6,435.51	
Interest			8,420.41	8,420.41		
New Laundry	2,050.44			81.21	2,131.65	
Manufac. of Flags		126.04	85.69	24.92		186.81
Miscellaneous			11,762.74	12,957.46	1,194.72	
Norris Medal	61.34		47.40	114.00	127.94	
Fee Dee Station		1,487.22	12,073.87	13,555.69		5.40
Poultry Husbandry ..		349.20	1,031.04	417.43		962.81
Printing		170.86		170.86		
Rents			7,528.00	7,528.00		
Reserve	111,296.64		22,041.14	65,157.53	154,413.03	
Reserve to repay loan	506.25		21,368.05	20,861.80		
Smith-Hughes Fund ..		3,677.12	12,396.16	3,810.98		12,262.30
Sou. Ry. Loan Fund..	635.12		75.00	113.71	673.83	
Summer School	471.82		4,595.31	6,615.32	2,491.83	
Textile Dept.	178.11		518.98	592.61	251.74	
Upkeep Residences	311.81		2,791.27	3,166.02	686.56	
Veterinary Hospital ..	168.46		3,400.75	3,096.86		135.43
Wood Shop	764.01		1,736.55	1,439.70	467.16	
Piano		105.00		50.00		55.00
Army Tr. School "B"	2,336.08		2,336.08			
Smith-Lever Int. Acct.	1,071.72		476.89	1,677.63	2,272.46	
S. A. T. C.	15,837.40		15,837.40			
Cadet Exchange	71.06		16,505.23	15,795.67		638.50
Claims		262.07		262.07		
Geo. Cherry Loan Fd.	362.74		150.00	250.00	462.74	
Cash on hand						132,338.14
Total	\$139,957.45	\$ 23,105.19	\$316,184.29	\$300,698.41	\$175,511.97	\$175,511.97

EXHIBIT "F"

CONDENSED STATEMENT

Sources of College Revenue and Expenses for Fiscal Year, July 1,
1919 to June 30, 1920, Inclusive.

INCOME

Privilege Fertilizer Tax -----	\$313,472.54	
Interest on Clemson Bequest -----	3,512.36	
Interest on Land Scrip -----	5,754.00	
Morrill and Nelson Fund (U. S.) -----	25,000.00	
Tuition -----	17,472.83	
Sales, interest, rents, etc. -----	23,210.84	\$ 388,422.57

Adams and Hatch Funds—

Balance Farm Products -----	3,857.44	
Received Adams Fund -----	15,000.00	
Received Hatch Fund -----	15,000.00	
Received Farm Fund -----	3,047.61	36,905.05

Extension Work—

Balance to cover unpaid work -----	6,288.49	
Federal Appropriation -----	117,222.87	
State -----	67,994.99	
Counties (Memorandum) -----	39,227.88	230,734.23

Cadet Fund—

Balance July 1, 1919 -----	10,015.33	
Receipts sundry -----	248,799.23	258,814.56

Reinvestment Fund—

Net balance July 1, 1919 -----	116,852.26	
Receipts -----	316,184.29	433,036.55

Students' Deposit Account—

Balance July 1, 1919 -----	641.67	
Deposits -----	76,999.24	77,640.91

Total Receipts and Balances -----		\$1,425,553.87
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DISBURSEMENTS

College -----	\$388,422.57
Adams and Hatch Funds -----	34,685.62
Extension Work -----	230,734.23
Cadet Fund -----	255,456.56

Reinvestment Accounts -----	300,698.41	
Cadet (checks paid) -----	77,556.62	—\$1,287,554.01

Balances July 1, 1920—

Adams and Hatch Funds -----	2,219.43	
Cadet Fund -----	3,358.00	
Reinvestment Fund -----	132,338.14	
Cadet Deposits -----	84.29	— 137,999.86
		<u>\$1,425,553.87</u>

BANK BALANCES**College, Cadet, Reinvestment and Experiment Station Funds.**

Reconciling with Banks.

Balances July 1, 1920.

National Bank of Sumter -----	\$ 18,000.00
Bank of Greenwood -----	13,000.00
Bank of Anderson -----	48,000.00
Farmers & Merchants Bank of Anderson -----	44,459.52
Pickens Bank -----	13,000.00
Palmetto National Bank -----	52,500.00
Exchange Bank, Newberry -----	13,000.00
Farmers Bank, Abbeville -----	8,000.00
Peoples Savings Bank, Abbeville -----	13,000.00
National Bank, Abbeville -----	3,000.00
Bank of McCormick -----	13,000.00
American Bank, Greenville -----	8,000.00
National Bank, Newberry -----	15,500.00
Bank of Troy -----	1,500.00
Union Savings Bank, Bennettsville -----	17,633.18
Fort Hill Bank -----	1,000.00
	<u>\$282,592.70</u>
Total -----	45,272.13
Bank of Pendleton Overdraft -----	
	<u>237,320.57</u>
Total -----	99,405.00
Checks out (list exhibited) -----	
	<u>\$137,915.57</u>
	84.29
Cash in office -----	
	<u>\$137,999.86</u>
Total -----	

Smith-Lever Fund

Pickens Bank -----	15,000.00
Union Savings Bank -----	19,613.94
	<hr/>
	34,613.94
Less O-D Bank Pendleton -----	28,357.56
	<hr/>
Total -----	6,256.38
Less checks outstanding (list exhibited) -----	6,256.38
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Report of Board of Visitors

Anderson, S. C., Aug. 30, 1920.

To the Honorable Board of Trustees
Of Clemson Agricultural College,
Clemson College, S. C.

Gentlemen:

The Board of Visitors, in accordance with the law of this State, after due notice, visited Clemson College on May the 5th and 6th, 1920, and on that date and the day following made a thorough and systematic inspection and investigation of practically all phases of the college operation and life. Some of the Board of Visitors were detained by sickness or other causes, and those making the inspection were Messrs. B. H. Moss, G. A. Buist, H. M. Cassels and T. F. Watkins.

Our inspection was much facilitated by the arrangement made for our accommodation and by the courtesies and assistance rendered to us by the President, several members of the faculty and several representatives of the student body.

We had the opportunity of seeing the cadet corps in military drill, made a thorough inspection of the hog barns and farm, the dairy barns and dairy cattle, the veterinary hospital, the Y. M. C. A. building and its appliances, the central power station, John C. Calhoun mansion, fortunately preserved as a shrine for patriotic South Carolinians, and the main college building, all on the first day. That evening we had a very interesting and instructive meeting with a number of the members of the faculty and with the representatives of the College Press, these three students being representative men elected by the student body and men who from their student officers were in touch with student sentiment. At this meeting we were given a thorough insight into the administrative and accounting systems in use at the college, and had also a free round table discussion of all phases of college student life. On the second day, after attendance at chapel service, we inspected the Agricultural Department, Chemistry Department, including the fertilizer inspection and analysis division. We inspected carefully the student rooms, toilets and baths, the water supply, the kitchen and store rooms, or commissary, dining hall, the refrigerating plant and the abbatoire. After dinner with the cadets, at which we were assured by them only a typical menu was served, we inspected the Textile Department, Engineering Department, and site for the proposed hospital.

In the first place, we wish to report that the splendid physical condition of the cadet corps was so obvious from their appearance that our subsequent investigation of the records on this matter was hardly necessary, and but merely verified what we were sure was the case, that the health of the students is as fine as could be in so large a body. This is not surprising in view of the setting-up exercises, regular life, and other benefits of your military discipline and drill, when coupled with the sanitary conditions, water supply, and supply and preparation of food. We were satisfied and cheerfully report that we do not see how the quality and preparation of the food could be better except at enormously greater and unreasonable expense. In our opinion there is no necessity or reason for serving better or more food than was being served at the time of our inspection. Our inquiries at random among the student body and directly with the representatives that we talked freely with on several occasions convinced us that the food then being served was typical of the food that had been served all spring.

We report further that in our opinion the plant is being run at as high a degree of efficiency as is obtained in any business or other organization that we are acquainted with, and that the State is getting the maximum amount of results for every dollar invested in this great plant. We congratulate the State of South Carolina on the great asset it has in Clemson College and the educators connected with it, and only wish that the State and the tax payers of the State were more fully informed of the character and extent of the facilities it offers to the students and to the people of the State, and took even greater advantage than is being taken of these splendid facilities and the services rendered by those entrusted with the administration of the college teaching and college work.

Our specific recommendations are:

1st. That provision be made by the Legislature for the building of the building of the infirmary or hospital which was planned before the War.

2nd. That the long distance telephone and telegraph service connecting the college with the rest of the State be improved and made available at a greater number of hours of the day and night than has been the case in the past.

3rd. That suggestions 1 and 2 submitted to the Committee on revision of the cadet regulations by the President in his letter of April 2nd, 1920, appended hereto as an exhibit, be put into effect, if this has not already been done.

Respectfully submitted,

(Signed) T. F. WATKINS,

Chairman, Board of Visitors.

REPORT OF THE BOARD OF VISITORS—1920

EXHIBIT

Excerpt from letter of W. M. Riggs, President, to Committee on Revision of Cadet Regulations of Clemson College, dated April 2, 1920.

"I take the liberty of making the following suggestions:

1. That the sessional limit for demerits be increased from 121 to 150.

2. That the so-called Senior Class Privileges be either specifically given in the Regulations, or specifically denied, so that they may not continue an annual disturbing factor. If given, I think they should be subject to withdrawal for violation of any accompanying military provisions, and the campus privilege, if given, should be withdrawable upon the recommendation of the faculty in the cast of any student not properly maintaining himself in his classes."

Report of the South Carolina Experiment Station

Clemson College, S. C., November 22, 1920.

Dr. W. M. Riggs, President.

Clemson College, S. C.

Dear Sir:

I have the honor to submit herewith the thirty-third annual report of the South Carolina Experiment Station for the fiscal year ending June 30, 1920.

One effect of the World War on agriculture has been an increased appreciation of research. The Experiment Stations during the past three years have been called upon to demonstrate in concrete form the value of their research and they have done this in a way which merits the approval of all agricultural workers. During the campaigns for increased food production every effort was made to secure the application of all scientific data that seemed to have a bearing on food production and agricultural advancement. This emphasized in the minds of the public the value of the results of agricultural experimentation and caused farmers everywhere to appreciate as never before the fundamental importance of the application of science to practical agriculture. As a result a more appreciative public is now clamoring for information on all kinds of important questions. The Extension forces, the teachers of agriculture and those having charge of agricultural control work are continually being embarrassed by demands for more accurate information on many fundamental agricultural problems. These forces in turn pass the request on to the Experiment Stations and our research workers are constantly confronted with demands for information on many problems which they have neither funds nor facilities for solving.

In addition to the problem of increasing production and controlling animal and plant diseases on which we have worked for the past thirty years, there are new lines of investigation which the Experiment Stations are being called upon to undertake. I refer to the Economic problems affecting farm management, home economics and the distribution and marketing of farm products. The Hatch and Adams funds of the federal government were appropriated especially for investigation of agricultural questions bearing on production, and the majority of the Experiment Stations have not had the facilities for conducting studies in Farm and Home Economics. These problems are now becoming so acute that inves-

tigations along these lines seem absolutely essential if we are to continue to advance.

In the face of appreciation of the work of the Experiment Stations, and the increased demands for results, the Research Agencies have been seriously handicapped on account of the fact that many of the workers have been attracted to other fields, where larger opportunity for financial betterment existed. Many of the workers who had been contented to devote their entire time and energies to investigation work before the war have seen the vision of larger opportunities in commercial fields and are permanently lost to research. The more attractive salaries in teaching and Extension work have also depleted the ranks of research workers, so that it is difficult to fill the vacancies in the Experiment Station Staff. This is especially true of the assistants and the lower salaried positions. It has been impossible for us to meet competition of other organizations because our funds have not increased and many of our projects require large expenditures for labor, fertilizer, supplies and equipment, which have likewise greatly advanced in price.

The appropriation made by the State Legislature at the last session for Agricultural Research has enabled us to enlarge the work to some extent at our sub-stations, and has also enabled us to undertake additional projects bearing upon crop production and live stock development.

The following Adams Funds projects are being continued:

- No. 2. Effect of temperature moisture on insect activity.
- No. 6. A study of the inheritance of barrenness in corn.
- No. 10. Cotton anthracnose investigation.
- No. 19. A study of bacterial diseases of cotton.
- No. 21. A study of seed production and tuber formation in Irish potatoes.
- No. 22. A study of the bacterial content of milk.
- No. 24. A study of inheritance in oats.
- No. 25. Further study of the determination of moisture in soils and agricultural materials with the study of the nature of the decomposition given off.
- No. 26. A study of the effect of stirring soil on moisture content, oxidation, nitrification, and crop yield.
- No. 27. A study of factors influencing oil content on seed.

Progress has been made with all of these during the year. The work of all of them has been more or less interfered with by changes in the staff, and by pressure of other work. I feel, however, that our staff has been strengthened during the year, and we are looking forward to better results for the coming season. There are no particular outstanding results to report at this time.

The following is a list of our Hatch projects—arranged according to division:

Agronomy Division

Cotton culture and spacing tests.

Corn cultural tests.

A study of the effect of companion cropping of corn with legumes.

General comparative fertilizer tests.

Comparative tests of phosphoric fertilizer.

Variety tests with corn, cotton, wheat, oats, barley, sorghum, beans, peanuts, and velvet beans.

Comparative tests of grass and forage crops.

Animal Husbandry Division

Comparative tests of the value of velvet bean meal, peanut meal, and cotton seed meal, as protein feed for hogs.

Comparative tests of fish meal and tankage in pork production.

The comparative tests of rape, crimson clover, burr clover, alfalfa, rye, and barley, as winter grazing crops for hogs.

A study of the factors influencing production of soft pork.

Botany Division

A study of corn root diseases.

A study of miscellaneous cotton diseases.

A study of rust resistance in small grains.

Forestry experiments consisting of methods of seeding and rate of growth of the different species of pine at the Coast Station.

Dairy Division

A study to determine the most economical concentrate to supplement cotton seed meal as a feed for dairy cows in the South.

The comparison of corn silage and sorghum silage, for milk production.

A study to determine the feed required, and the cost of raising dairy calves.

A comparison of line breeding and out-crossing as a system of breeding dairy cattle.

Entomology Division

A study of methods of wintering bees.

A study of the comparative efficiency of different spray materials in controlling scale insects.

Horticulture Division

Fertilizer tests with sweet potatoes.

A study of the influence of the time of digging sweet potatoes upon keeping qualities.

Breeding fruit of the Genus *Rubus*.

Experiments in the utilization of muscadine grapes.

Tests of new importations of fruits and vegetables introduced by the U. S. Department of Agriculture.

Variety tests of peaches, plums, apples, and grapes.

Variety tests of Irish potatoes, sweet potatoes, and tomatoes.

SUPPORTED BY STATE FUNDS

Agronomy Division

Comparative tests of nitrogenous fertilizer at the Pee Dee Substation, and at the Coast Station.

General comparative fertilizer tests with corn, cotton, and small grain, at the two sub-stations.

Breeding work with Cleveland Big Boll and Cook Cotton, wheat, barley, rye, Lee County and Lowman Yellow corn.

A study of the effect of Trona potash on cotton and corn.

General comparative fertilizer tests on the varieties of soil types in South Carolina, conducted in cooperation with farmers.

The effect of continuous fertilizer on composition of soils.

Animal Husbandry Division

Tests with different breeds of sheep.

Breeding experiments with horses and mules.

Botany Division

Plant disease survey.

Dairy Division

Official testing of dairy cows in the State.

Entomology Division

A study of the influence of different factors on the hibernation of the boll weevil.

Experiments with dusting as a means of boll weevil control with calcium arsenic.

Horticulture Division

Variety tests with peaches, grapes, and small fruit, at the sub-stations.

Variety tests of pecans at the Coast Station.

I am giving below a summary of some of the important results accomplished during the year, as well as a general discussion of some of the activities not covered by reports, or heads of divisions, which are attached hereto and made a part of this report.

Agronomy

The Agronomy Division has more projects under way than any other division of the College, and a large number of their investigations are of fundamental importance. This division continues to devote special attention to problems relating to field crops and soil fertility. With South Carolina spending over \$50,000,000 a

year for fertilizer we naturally feel that it is the duty of this division to conduct such investigations with reference to the fertilizer requirements of our soils and crops as will enable us to advise our people what kinds and qualities of fertilizers it is best for them to use. The work which we have had under way with this end in view at our main station and at the Pee Dee Station, at Florence, has been continued and enlarged to include additional tests. Data compiled from these tests during the past three years are now being prepared for publication in bulletin form.

We have during this year inaugurated a new series of fertilizer tests in cooperation with farmers in different sections of the State. These are financed from the appropriation for Agricultural Research made by the last legislature, and are being conducted on the major soil types of the State. South Carolina has a very variable soil, consisting of about ten types which are of special agricultural importance. Results secured from tests conducted on one soil type in the western part of the state will not, of course, apply to a different soil type in the eastern part of the state. From these tests we hope to find out: (1) What combination of phosphoric acid, ammonia and potash will give best results on a certain soil type and for a certain crop; (2) What is the most profitable rate of the application for each crop on each soil type, and (3) Does the soil type being tested need lime. One of these tests conducted on sandy loam soil in Allendale county, under heavy boll weevil infestation this year, gave very interesting results. The best plots yield more than a bale of cotton per acre, and the results indicate that nitrogen is our greatest limiting factor, and phosphoric acid second in importance in producing cotton on this type of soil, under boll weevil conditions.

We have continued to study the effect of Trona potash and borax on crops. Cooperative tests were conducted on six farms in Darlington County this season and serious injury resulted from all rates of Trona potash applied. On the Pee Dee Station the results were about the same as last year, that is: little injury resulted when moderate amounts of Trona potash containing borax was applied to cotton and corn. We now feel that Trona potash is very injurious under some conditions, but that the results are influenced largely by the kind of soil, the climate and other factors. This, we believe, is the true explanation why there has been injury in some places and not in others, and why so many conflicting reports have been given out with regard to the matter.

Variety tests with various crops continue to give interesting and valuable information. As a result of our variety tests with cotton for the past several years we are prepared to make the following recommendations for boll weevil conditions in South Carolina:

The best short staple cotton for land free from wilt—Cleveland Big Boll.

The best short staple cotton for land infected with wilt—Dixie Triumph.

The best long staple varieties—Webber No. 49 and Webber No. 82.

Fulghum and Appler oats, Boggs Blue Stem and Leaps Prolific wheat; and Douthit, Cokers E-1, Lowman Yellow and Garrie corn, continue to give the highest yield in our tests. Detail results for these tests for the past three years are being prepared for publication in bulletin form.

Satisfactory progress has been made with the breeding work with cotton, corn, rye, wheat, and barley, and what seem to be superior strains have been isolated and are being further tested and increased.

The study of the factors affecting the oil content of cotton seed is yielding some interesting results, which promise to have an important bearing on the formation and production of oil in plants. The other Adams fund projects on "Barrenness in Corn" and "Inheritance in Oats" are being continued and are yielding results.

Animal Husbandry

The better part of the year has been spent in building up and enlarging the Animal Husbandry Division. Professor L. V. Starkey, now head of this division, has shown considerable enthusiasm for his work and has done a great deal of constructive work, during the year, in developing this division. Realizing that we would not have funds sufficient to develop all phases of the work at one time, we decided last fall to concentrate on hogs, and to build up this feature of the division as rapidly as possible. We are just completing a new hog barn, which has cost about six thousand (\$6,000) dollars, and we have purchased during the year twenty pure bred Duroc-Jersey and Poland China sows, and an exceptionally good boar of each of these breeds. The Poland China boar was grand champion at the Ohio State Fair, and at the Tri-State Fair at Memphis last year, and is, we believe, the best Poland China boar in the south. We have on hand now about four hundred and fifty (450) head of hogs and pigs, and are planning to use a great many of these in our experimental work. We have set aside about sixty acres of land for the hog farm, and have purchased wire and posts for fencing this. When these fields are fenced, we plan to undertake rather extensive experiments with crops, which will be hogged off and converted into pork.

We are now cooperating with the Bureau of Animal Industry of the U. S. Department of Agriculture, in an investigation to de-

termine the factors influencing the production of soft pork. In order to develop the soft pork project, and other experimental work needed along this line, we will need a man who can devote his entire time to the research work, and provision is made for this in the estimates for agricultural research, submitted to the Budget Commission.

Professor Starkey is planning experimental work with beef cattle at the Coast Station, and has purchased fifteen head of pure bred Aberdeen Angus cattle, which have just been delivered to this station. We plan to begin some experimental work with beef cattle here at Clemson, just as soon as funds are available.

This division is also conducting some tests with the different breeds of sheep—Hampshire and Southdowns are being used. Three ewes of each breed were purchased. One of the Southdowns is an imported ewe from the King of England's flock, and was grand champion in her class at the International Live Stock Show at Chicago in 1919.

Dry lot feeding tests have been conducted with hogs to determine the comparative value of tankage and fish meal as protein supplements to corn. These tests were conducted here at the college, and duplicated at the Pee Dee Experiment Station. Fish meal proved to be an economical substitute for tankage and the result of these experiments show that the hogs fed fish meal made slightly larger gains, and at a little less cost than those fed tankage.

The horse breeding project is being continued and we now have a number of grade Percheron mares, from which we are raising mules. These mule colts from grade Percheron mares look very promising, and we believe that they are going to make mules which will be well suited to South Carolina farm conditions.

Botany

The Botany Division has continued to study the influence of physical factors on the vitality of the Anthracnose fungus in cotton seed. The seed have been dried by passing currents of hot air over them and by heating them in a vacuum. The seed have also been treated with various chemicals and with different gases under pressure. It has been found that the fungus can be killed in the seed by some of these methods, but no practical method has been devised which kills all of the fungus, without serious injury to the seed. Some of these methods, which give promise of yielding encouraging results, are being continued.

Some attention has been given during the year to corn root diseases, which have appeared in several sections of the State. Dr. Ludwig is studying some of the organisms which have been isolated from the diseased plants, and is also making a study of soil and climatic factors, which might be responsible for the trouble.

The breeding work with wilt resistant cotton, which has been conducted in cooperation with the Bureau of Plant Industry, has reached the point where it seems advisable to turn this work over to the farmers and cotton breeders. The varieties that have been developed have proven of such great value, and have come to be so widely used, that it no longer seems necessary to continue using public funds for the work.

This division has received a large number of specimens of diseased plants during the year, and has kept up active work with the farmers and county agents, relative to the control of the diseases of our common crops.

The research work in Plant Pathology has been closely correlated with the work of the Crop Pest Commission, and the data which the research workers have obtained relative to various destructive diseases have been applied in working out quarantine regulations and control measures.

Chemistry

Dr. Lipscomb, of the Chemistry Division, continued his work on a method of determining moisture in soils and agricultural materials and has published an additional article on this subject. This method consists of heating samples in a vacuum and collecting and analysing the products given off.

The analytical work connected with several important projects conducted by other divisions of the station has been done by this division. Dr. Lipscomb has continued to cooperate with the Botany Division, in the effort to develop a method for destroying anthracnose in cotton seed, by drying the seed and by treating them with various chemicals and gases. He is also making the chemical analysis in connection with two projects which the Agronomy Division is conducting—that is: “The study of the effect of soils and fertilizer on the oil content of cotton seed,” and the study of the effect of stirring soil on moisture content, oxidation, nitrification and crop yields.” More than forty samples of cotton seed have been analysed in the study of the influence of factors on oil content and a large number of samples taken from various fertilizer plots, and from different soil types, still remain to be analysed. There has been so much routine and analytical work of this kind to do that there has been little time available for purely chemical research. The analysis of the cotton seed so far indicates that potash is an important factor in the formation of oil, definite conclusions cannot be drawn, however, until a larger number of samples from different fertilizer plots and soil types have been analysed.

Dairy

The Dairy Division continues to cooperate with the Alabama and North Carolina Experiment Stations, in a study to determine a more economical concentrate to supplement cotton seed meal as a feed for dairy cows in the South. Practically all of our pure bred cows have been on an official test this year, and we have, therefore, not been in a position to make as extensive feeding tests as we hope to do in the future.

Data have been kept on more than fifty Jersey and Holstein calves, during the year, in an effort to determine the feed required and the cost of raising calves. The calves are weighed each week and measurements made once a month. With the exceptionally high price which we have paid for feed, it has cost an average of \$12.00 each to raise Jersey heifers to one month of age and \$84.51 to raise them to one year of age. With the completion of our new calf barn we will have better facilities for conducting more accurate work along this line.

In continuing the study of the prepotency of the pure bred bulls, used in the Station herd, this division is making a study of the results of line-breeding and out-crossing as systems of breeding dairy cattle. In this project the Jerseys will be used and we are fortunate in having a number of animals that will fit in well with the plans of the experiment. Chromo's Sensation, the bull which we bought from the Shanklin sale will be used for line-breeding, with daughters and granddaughters of Blue Fox's Eminent's and Vive Glow Chief, the bull we purchased from Oregon will be used for out-crossing.

We are also conducting line-breeding of Holsteins, in cooperation with the Dairy Division of the U. S. Bureau of Animal Industry. They have loaned us a bull which we will use in this project.

Our herd has been tested twice during the year for tuberculosis, and at the last test none of the animals reacted. This indicates that the herd is entirely free from tuberculosis, and we have planned to go ahead and add a foundation herd of pure bred Guernseys in the immediate future.

We have continued the official testing of the herd and now have six registered Holsteins, with advanced registry records, and four more cows on test. We also have twelve Jersey cows with register of Merit records and have six more on test which are making good records. We are placing all of the pure bred animals on official test as rapidly as they freshen and will, of course, make these records the basis of our breeding operations in the future.

This division has charge of the official testing of all the dairy cows in the State, and under Professor Fitzpatrick's supervision the official testing in the state has developed from almost nothing

three years ago until now we have two cow testing associations in operation and about one hundred and twenty cows on official test. There is probably no other line of dairy work which means as much in increasing the production of the individual cows in the state. The production of the average dairy cow is about 200 lbs. of butter fat per year. The range of production of the cows tested in this state is from 300 lbs. of butter fat to 867 lbs. If all of our pure bred cows were put on tests, and only the better ones used for increasing the herds there would be rapid strides in increasing production.

We hope to put on a man who can devote his entire time to experimental work with our herd and checking up and supervising the official tests in the state. Provision is made for this in our budget for Agricultural Research, which has been submitted to the legislature.

Entomology

The Division of Entomology continues to devote the larger share of their time and energies to the study of the influence of temperature-moisture on insect activity. During the last fiscal year this work has been conducted along the lines of insect ecology and studies have been made in the fields along economic lines. These have included experiments with the army worm, red spider, and the boll weevil. All of the data obtained in these biological studies have been used to forecast probable outbreaks of destructive pests.

With the spread of the boll weevil over the entire state, considerable attention has been paid to the biology of this insect and its life history and habits have been studied under different conditions prevailing in different sections of the state. Special studies along this line have been conducted on Little Edisto Island, James Island, and at Summerville.

Experiments on poisoning the boll weevil were conducted at these places. The records for this season, however, are too incomplete at this time to make any definite statement as to results. Weather conditions were adverse for poisoning.

During last winter a large hibernating cage was constructed on Edisto Island, about 3400 boll weevils were used in this, and their activities carefully checked up during the winter and spring. During the coming winter there will be a number of these cages located at suitable points for the purpose of studying the behavior of the weevil, and finding out what percentage will survive the winter under different conditions. Data are also being secured on the time that the weevil emerges from winter quarters in different sections, and this will be valuable in planning control measures. Data collected this year indicate that the period from egg laying to emerging to adult weevils averages under our conditions, $17\frac{1}{2}$ days,

and the period from emerging to egg laying averages $7\frac{1}{2}$ days, giving a life cycle of 25 days.

This division continues its studies on wintering bees out of doors. Many different packing materials have been used for protecting the bees in winter. Among the most promising of these are sawdust, forest leaves, and straw.

Professor Conradi, the head of this division, continues to give a large share of his time to the work of the Crop Pest Commission. This is necessary because of the constant danger of the importation of new and destructive pests. During the year there have appeared in this country a number of pests which we must guard against very carefully. The Pink Boll Worm, Bean Beetle, European Corn Stalk Borer, and the Japanese Beetle are a few of these. It is necessary, of course, that we give some time to the study of these pests, and be prepared to plan measures which will prevent their introduction into the state.

Horticulture

The Horticultural Division has continued to study the factors which influence seed production and tuber formation in Irish potatoes. A number of promising strains of the Lookout Mountain seedlings have been isolated, and have been increased. The original lot of twenty-one hundred seedlings, which we started several years ago, has been culled down to eighty-one, which seems to be of sufficient promise to continue. The investigation is yielding very interesting information on Irish potato breeding and production, and we have every reason to believe that we will get very valuable new varieties from some of the strains which we have growing.

Several foreign vegetables which have been brought in by the U. S. Department of Agriculture, have been experimented with during the year. Among the most promising of these are the Chinese Cabbage, Yudo and Japanese Celery. Mr. Young, who is conducting the tests of these feels that they all have considerable promise as vegetables for this country.

The sweet potato fertilizer test has been continued in cooperation with other states and the results here indicate that potash is not necessary in our Piedmont soil, even for sweet potatoes. The use of large amounts of nitrogen has resulted in the production of luxuriant foliage, but has not increased the yield.

A number of foreign fruits, imported by the U. S. Department of Agriculture have been added to our orchards. These embrace a variety of common fruits, as well as some which are not so common. Among the latter one of the most promising is the Jujube, a Chinese fruit, which when boiled in syrup and dried, bears a close resemblance to the date.

Work looking to the utilization of the muscadine grape has been continued. A bulletin is now in the press, giving the results of this work. A number of crosses have been made with the Brighton and Lindley, and other varieties of bunch grapes. These hybrids are being grown for further breeding and experimental work.

A large number of tests with small fruits have been made and breeding work started with raspberries and blackberries, with a hope of producing improved varieties adapted to South Carolina conditions. One hundred and fifty pure seedlings of the Haymaker raspberry have been grown and several of these have borne fruit of sufficient promise to be propagated for further tests.

Further experiments in frost prevention have been conducted and it has been found that spraying the trees with white wash and other mixtures has no effect in delaying the opening of the buds. The temperature was, however, raised from two to three degrees in the orchards during the cold spell in the spring, when frost threatened, by means of small open fires at frequent intervals through the orchard.

Coast Experiment Station

The outstanding feature at the Coast Station is the lack of adequate drainage. Our soil fertility studies and many of our other field experiments have had to be temporarily abandoned until the drainage system can be put back in working order.

An investigation of this system was made and a complete report on its condition was prepared last December by H. M. Lynde, of the office of Drainage Investigation of the U. S. Department of Agriculture. This report sets forth the facts that the outlets of the system are inadequate and many of the tiles in the lateral drains are filled up with sand and silt. A part of the appropriation made by the last legislature for agricultural research was set aside by the Board of Trustees for the purpose of improving the outlets and taking up and relaying the tile. A flood gate has been put in at the outlet at Rumphs Creek, to prevent the water from this stream from entering the drainage system, and the outlet ditch leading to Platts Branch has been cleaned out and the bottom regraded. Mr. Riley, the Superintendent of this station, is now engaged in taking up the tile in the laterals, cleaning them out and relaying them. When this is completed we have every reason to expect that the system will again function in such a way as to give us good drainage.

Labor conditions have improved during the year, and the seasons were such that we made a fairly good crop on all of the land, in spite of the poor drainage. Even under the conditions of the boll weevil infestation, which we had, we made a little more than one-

half a bale of cotton to the acre. Experiments were undertaken looking to the control of these pests, but the rains were so constant at the time the poison was applied that little benefit resulted from the dusting. The weevil was so late in making its appearance on the station this year, and labor at that time so scarce that other control measures such as picking squares and special cultural practices were not attempted. We have experiments along these lines outlined for next season.

The corn and hay crops were good and we have ample feed for the horses and hogs and plenty of hay and roughage for the cattle. The old variety orchard, which had served its purpose by indicating which varieties of peaches and grapes were best suited to this section of the state, has been abandoned and a new home orchard, including fruit and berries, has been put out. Experiments are also under way with Irish potatoes, sweet potatoes, and asparagus. An acre has been seeded in alfalfa, and this is doing well. We have purchased three mules during the year, and now have enough work stock to take care of ordinary work on this station. The Forestry experiments are being continued and the planting of different species of pine which have been made from year to year, are now developing sufficiently to indicate the value of the different methods of seeding and the rate of growth of some of our best pines.

During the year we have devoted considerable attention to the development of the live stock work on this station. We have just purchased three hundred acres of land north of and adjoining this station from the Southern Railway, and have this fenced for experimental work in pasture development and beef cattle production. Our grade herd of cattle, which we started last year, now numbers eighteen, and we have recently purchased fifteen head of pure-bred Aberdeen Angus cows and calves for this work. We still feel that this cut-over pine land of the Coastal Plain can be profitably utilized for producing cattle.

Last year we started some experiments to determine the carrying capacity of these lands, and these are being continued. We have also seeded about ten acres to Lespedeza, and have made an effort to get carpet grass seeded over larger areas in our pastures. It was impossible this year to get a large amount of carpet grass seeded, but we have purchased a supply which will be sowed in the spring.

We seeded Lespedeza by simply sowing it broadcast on the land, which had recently been burned over. No effort was made to plow the land, or cover the seed in any way, but they have germinated and the young plants are developing rapidly. As this project develops we will, of course, need further equipment in the way of buildings, silos, fences, etc., and we, of course, expect this to come from the legislative appropriation for Agricultural Research.

I feel that there is an opportunity at this station to do a great deal of work that will be of great value in the agricultural development of this large area of cut-over lands, and am very anxious that every effort be made to organize the work so that we can do fundamental research with crops as well as cattle.

Pee Dee Experiment Station

Work at the Pee Dee Station has continued to progress in a very satisfactory manner. The amount of experimental work is increasing constantly at this station. We are accumulating vast amounts of valuable data on the different phases of crop production. Mr. R. E. Currin, Superintendent of this Station, continues to handle the work in a very efficient manner. While labor conditions have been somewhat critical, they have improved materially in the last few months, and I believe by the beginning of the year we will have ample labor to handle the work at this station.

We probably have more fertilizer experiments at this station than could be found at any other Experiment Station in the country. We are not only testing the value of the different elements in the production of crops, but are conducting numerous tests with a view of determining the value of the different sources of nitrogen, phosphoric acid and potash. This, of course, necessitates a great deal of plot work, and makes the operations rather expensive. We have one series of fertilizer tests which include one hundred and eighty-one tenth-acre plots. This series has been in operation for seven years and the results covering this period are now being compiled for publication.

The rotations, which we are studying here, are continuing to give very interesting and valuable results. In one of our rotations with cotton, corn, small grain and peas where we have two crops of peas every three years we have been able to maintain the yields with very little fertilizer.

We are continuing to conduct experiments at this station in co-operation with the U. S. Department of Agriculture. These include fertilizer tests with corn, cotton, tobacco, sweet potatoes and peanuts. In these experiments we are testing the different kinds of domestic potash salts, as compared with the European salts, which made up the bulk of the potash in fertilizers before the war.

Tobacco is one of the most important crops of the Pee Dee section, and we are continuing to conduct fertilizer and cultural experiments and variety tests with the crop. The excessive rains during the period when the tobacco was maturing caused considerable damage, and this season the crop was not as profitable as usual.

We are still continuing our experiments with peanuts and sweet

potatoes, in cooperation with the office of Horticultural Investigation of the U. S. Department of Agriculture. Of the fifty-six varieties of sweet potatoes planted here for the past few years, only about ten varieties seem to have any particular value, and only three or four of these stand out as being especially suited to our conditions. Last year we converted one of our tobacco houses into a sweet potato house, and stored several hundred bushels of potatoes in it very successfully. A false floor was put in this barn above the flues, and the bins were constructed to hold the potatoes. The heat for curing the potatoes was obtained by firing the barn in the usual way, and during the especially cold weather during the winter an oil stove was placed in the barn to keep the temperature from going too low. It takes very little additional equipment to prepare a tobacco barn for sweet potato storage. A floor can be put in so as to be easily removed when it is time to cure the next crop of tobacco. In this way one house can be used for storing tobacco and potatoes. We have also started some breeding with two of our most promising varieties, Nancy Hall and Porto Rico.

The peanut experiments are yielding very valuable data as to the varieties, cultural practices, fertilizers, etc., that are best for our conditions. Mr. F. E. Miller, who has been conducting this work for the U. S. Department of Agriculture, has resigned his position to take up work with the North Carolina Experiment Station, and it seems that we might have to finance this work ourselves in the future, if it is to be continued.

The work at this station has developed so rapidly, and we now have such a large number of detail experiments under way, that it is going to be necessary for us to add another man to our staff. If we are to get anything like maximum results from this work we must have some one who can devote his entire time and energy to following up these experiments in the field and interpret and tabulate the results. I have provided an item in my next year's budget for such an assistant, with the hope that sufficient appropriation for Agricultural Research will be made by the legislature to take care of this. Mr. Currin's detail report of the activities of this station is appended as a part of this report.

Publications and Library

During the year four regular publications have been issued, totalling over 13,600 copies. The number and title of these are given in the report of the Agricultural Editor, which is appended hereto. The members of the Experimental Station staff have as usual prepared extension bulletins and news articles giving results of their work in proper form for the publishers. These have been sent out by the Agricultural Editor.

The list of the classified names of the Experiment Station mailing

list now totals nearly five thousand and additions are being made constantly. We have a machine for cutting our own stencils, which enables us to make necessary revisions promptly, and keep our mailing list up to date.

We have made every effort to develop our Experiment Station Library as rapidly as possible and during the year Mrs. Crown Torrence, who was appointed librarian, has devoted her time to classifying, cataloging and arranging the material which has accumulated since the establishment of the station. We have a large amount of valuable material on hand that needs classifying and binding, and there are also many valuable reference publications and scientific journals that we have subscribed to in an effort to make available for our research workers the literature bearing on their problems. It is our hope to develop this library to the point where it will contain all information on agriculture that is of value to research men and students. There should, of course, be such a library connected with the institution which is responsible for pointing the way for all agricultural development in the south.

Experiment Station Farm

On Jan. 1st, 1920, the college farm comprising all of the cultivated land owned by the college, and located west and south of the campus, was turned over to the experiment station, to be used for experimental purposes. Parts of this, about 250 acres have been set aside for growing silage and hay for the dairy herd and feed and grazing crops, for the beef cattle and hogs in the experiment station herds. The balance of the land, comprising about 200 acres, is being used for growing cotton, small grain and hay.

Mr. C. S. Patrick was appointed superintendent and head of the farms division, and has charge of all the work on the experiment station farms, with the exception of Horticulture. This has resulted in pooling all of our equipment and labor, and using them where they are most needed.

With this additional land available for research and the organization of the farm work improved we have better facilities for conducting experiments at Clemson with crops and animals.

State Support for Research

As I have pointed out in the introduction of this report, there is every reason why the work of the Experiment Stations should be enlarged and increased. Our research work is the foundation upon which the principal industry of the state is based, an industry which produced five hundred million dollars worth of agricultural products in 1919. If our agriculture is to continue to develop along safe and sound lines our farm practices must continue to be based on scientific facts, and as our agriculture readjusts itself to changing conditions, our research agencies must keep ahead and be

able to point the way. In this way practices can be developed which would help our farmers to grow and handle successfully new crops which the boll weevil and changing conditions are forcing them to produce.

We are asking the legislature for \$50,000.00 this year for the support of the research work at our sub-stations, the support of our cooperative experimental work with the farmers throughout the state, and for supplementing and enlarging research work at the main station at Clemson. Fifty thousand (\$50,000.00) dollars is only one-tenth of one percent of the value of the agricultural products of last year, and while this seems to be an exceedingly small sum to invest in agricultural research, which is the very foundation of the industry, we feel that this will meet the most outstanding needs. A much larger sum could be used with profit to our agriculture, but we do not deem it wise to ask for a larger appropriation at a time when there is every indication that declining prices will work a hardship on our tax payers.

Respectfully submitted,

H. W. BARRE,

Director.

Annual Report of The Extension Service

REPORT OF EXTENSION SERVICE

By W. W. Long, Director.

Since our last annual report was submitted our State has been blessed with a most prosperous year. Never in its history have the farmers been so free of debt and possessed such large bank accounts. This can be understood when the fact is known that South Carolina stood sixth in the list of states in per capita wealth produced in 1919 and second in wealth produced per acre. The average gross income per farm of thirty acres in South Carolina for 1919, according to a recent report of the Bureau of Crop Estimates, was \$2,338.00. It will be of further interest to note that the increase in live stock, milch cows, other cattle and swine in South Carolina for the last five years has shown an average far above that of the United States.

The Extension Service has reached the doctrine of a diversified agriculture since the work was first inaugurated and therefore it is with pride that we can point to the fact that the increase in corn acreage in the past five years is nearly three times as great as the increase in cotton acreage. The increase in the acreage of wheat and oats is in excess of the increased acreage of cotton. These facts indicate that our people are beginning to realize the necessity of making their supplies at home.

SCHEDULE "A"

Sources of Funds for Extension Work—Year Ending June 30, 1920.

Federal Smith-Lever Fund -----	\$117,222.87
State Appropriation -----	67,994.99
Counties and Miscellaneous -----	97,381.38
	<hr/>
	\$282,599.24
From U. S. Department of Agriculture -----	45,390.00*
	<hr/>
Total -----	\$327,989.24**
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* Disbursed by the Treasurer of the United States, and does not appear in schedules "B" and "C".

** Winthrop College has immediate supervisoion of the expenditure of \$105,582.52 of the total for Home Demonstration Work with women.

SCHEDULE "B"

Summary Statement of Expenditures, by Projects, Showing Sources of Funds Used for Extension Work.

Projects	Total	— Smith-Lever —		County and Miscellaneous
		Federal	State	
Administration	\$ 27,303.84	\$ 15,371.31	\$ 11,932.53	.....
Printing and distrib. of pub.	4,042.79	2,382.55	1,660.24	.....
County Agents	96,300.47	39,520.45	19,573.89	\$37,573.89
Negro Demonstration	4,855.95	3,925.15	930.80	.....
Live Stock	5,500.77	2,270.50	3,230.27	.....
Dairy	4,342.99	2,024.25	2,318.74	.....
Home Demonstration Agents	105,582.52	29,190.73	16,584.30	59,807.49
Horticulture	8,415.32	5,824.38	2,590.94	.....
Poultry	1,933.05	1,702.93	230.12	.....
Marketing	2,275.99	1,944.97	331.02	.....
Entomology	3,907.08	2,252.21	1,654.87	.....
Botany and Plant Pathology	2,421.88	1,208.25	1,213.63	.....
Boys Club Work	5,828.13	5,162.78	665.35	.....
Rural Sociology	1,753.70	719.87	1,033.83	.....
Cotton Grading and Marketing	1,607.48	.....	1,607.48	.....
Agronomy	6,527.28	3,722.54	2,804.74	.....
TOTAL	\$282,599.24	\$117,222.87	\$ 69,994.99	\$97,381.38

SCHEDULE "C"

Summary Statement of Expenditures, by Projects, Showing Classification of Expenditures for Fiscal Year Ending June 30, 1920.

Items of Expense	Total	Adminis- tration	Print. and dis. of pub.	County Agents	Home Economics	Negro Demon.
Salaries	\$195,729.68	\$15,194.70	\$	\$75,121.61	\$ 991.63	\$4,312.51
Labor	600.23	656.78	.....	.....	.....	.....
Print. and pub.	4,042.79	.....	4,042.79	.....	.....	.....
Sta. and small print	7,354.71	3,876.53	.....	2,000.00	.....	.....
Post., Tel., Tel., Frt., Ex.	2,734.26	1,957.71	.....	.....	12.70	.....
Heat, Light, Water, Power.	664.86	600.00	.....	.....	.....	.....
Supplies	391.56	114.76	.....	.....	96.08	.....
Library	135.06	122.31	.....	.....	.....	.....
Tools, Mach'y, Appliances	54.63	11.91	.....	.....	.....	.....
Furniture and fixtures	2,470.19	2,023.63	.....	.....	.....	.....
Scien. appar. and specimens	393.27	282.82	.....	110.45	.....	.....
Trav. expenses	67,628.50	408.67	.....	19,068.41	240.34	543.44
Contingent Expenses	539.50	54.02	.....	.....	.....	.....
TOTAL EXPENDITURE	\$282,599.24	\$27,303.84	\$4,042.79	\$96,300.47	\$3,503.83	\$4,855.95

SCHEDULE "C"—Continued.

Items of Expense	Live Stock	Dairy	Home Dem. Agts.	Agron.	Horticul.	Poultry
Salaries	\$2,449.98	\$2,409.48	\$ 73,415.69	\$4,404.14	\$5,212.49	\$1,399.98
Labor					3.45	
Print. and pub.						
Sta. and small print.		17.60	1,247.21	6.00		
Post., Tel., Tel., Frt., Ex.	65.50	25.35	428.67	22.52	101.61	3.15
Heat, Light, Water, Power						
Supplies	1.95	1.45	93.87	34.25	1.60	
Library						
Tools, Mach'y, Appliances					2.50	
Furniture and fixtures			261.55	13.72	3.15	8.25
Scien. appar. and specimens						
Trav. Expenses	2,983.34	1,889.11	26,631.70	1,999.67	3,090.52	521.67
Contingent Expenses				46.98		
TOTAL EXPENDITURE	\$5,500.77	\$4,342.99	\$102,078.69	\$6,527.28	\$8,415.32	\$1,933.05

SCHEDULE "C"—Continued.

Items of Expense	Marketing	Entomol.	Botany & Pl. Path.	Boys' Club W.	Rural Sociology	Cotton Grading
Salaries	\$ 700.00	\$1,859.99	\$1,950.00	\$3,474.99	\$1,225.01	\$1,607.48
Labor						
Print. and pub.						
Sta. and small print.		44.65		162.72		
Post., Tel., Tel., Frt., Ex.	54.51	23.87	2.00	34.54	2.13	
Heat, Light, Water, Power				64.86		
Supplies	3.84	37.51	6.25			
Library	12.00	.75				
Tools, mach'y, appliances		40.22				
Furniture and fixtures		133.89		26.00		
Scien. appar. and specimpns.....						
Trav. Expenses	1,505.64	1,766.20	463.63	1,826.52	526.56	
Contingent Expenses				238.50		
TOTAL EXPENDITURE	\$2,275.99	\$3,907.08	\$2,421.88	\$5,828.13	\$1,753.70	\$1,607.48

COUNTY AGENTS

The work of the county agents has been in nearly all cases satisfactory. The greatest hindrance has been in securing efficient men and in holding them at the salaries available. This fact will be appreciated when it is understood that the average salary of the county agents for the year 1919 and 1920 was \$1,965.00 with a travel allowance of \$400.00, out of which the expenses of maintaining an automobile had to be paid and in many cases purchased. The cost of maintaining an automobile will average \$50.00 per month and in those cases where the agents of necessity had to purchase a machine it can be readily seen they had but little left at the end of the year. We cannot hope to hold men who will be of real value and service to the people of their counties unless they are paid salaries that compare favorably with those paid in the business world. The funds provided by the State and the Federal Govern-

ment are not sufficient to enable us to compete with this outside interest, therefore, if the people in the several counties expect to secure the best trained and most efficient agriculturists they will see to it that their county delegations provide the necessary funds with which to supplement the State and Federal funds which are pro-rated equally among the several counties of the State.

The following summary of work conducted has been taken from the agents' annual report:

Crop	Number Dem- onstrations	Average acreage Demonstration	Total Acreage	Average Yield per Acre on Demonstration	Average Yield per Acre in Counties
Corn -----	514	16.0	8170	38.6 bus.	19.4 bus.
Cotton -----	500	21.8	10906	2072 lbs.†	639 lbs.†
Tobacco -----	218	10.3	2264	821 lbs.	640 lbs.
Oats -----	399	13.2	5298	36 bus.	15 bus.
Wheat -----	325	5.1	1677	17 bus.	10.7 bus.
Rye -----	503	7.0	3561	15 bus.	9 bus.
Bur Clover ----	78	5.1	402	Grazing and cover crop	
Crimson Clover--	676	8.0	5440	1.5 tons	1 ton
Alfalfa -----	339	3.6	1321	3.5 tons	2.25 tons
Velvet Beans -	624	17.2	10777	170 bus. (in hull)	138 bus.
Soy Beans ----	197	1.4	287	25 bus.	24 bus.
Sweet Potatoes--	359	3.4	1228	187 bus.	112 bus.
TOTALS -----	4732	*10.8	51341		

† Seed cotton.

* Average.

Orchards. 2,894 farmers were instructed in the culture and care of 353,041 fruit trees.

Dairy Cows. 124 registered bulls and 593 registered females were brought into the State due to the influence of the agents. They assisted the farmers in their respective counties in selling 525 head of purebred dairy cattle to other farmers throughout the State.

Beef Cattle. 121 registered bulls and 894 registered females were brought into the State due to the influence of the agents. 567 head of purebred beef cattle were sold to the farmers throughout the State through the influence of the county agents.

Swine. 430 registered boars and 2,772 registered females were brought into the State due to the influence of the county agents. 2,978 head of registered swine were sold through the influence of the county agents for breeders in their respective counties, to other farmers throughout the State. 213 feeding demonstrations with

1,186 hogs were supervised by the county agents and 1,703 farmers were induced to commence growing grazing crops.

Live Stock Diseases and Pests. 153,138 head of live stock were treated for diseases and pests with the advice and assistance of the agents. Of this number 74,886 were swine treated for hog cholera and valued at \$1,872,150.00

Fertilizers. 367 fertilizer demonstrations were conducted by the agents. 20,218 farmers were advised regarding proper home mixing and formulas. Assisted 101 communities to purchase cooperatively 20,935 tons of fertilizers valued at \$789,101.00 at a saving of \$126,244.00.

Lime. 245 demonstrations averaging 5.4 acres were conducted by the agents and they assisted in purchasing 518 cars of lime for 882 farmers.

IMPROVEMENTS MADE WITH AGENTS' ADVICE AND ASSISTANCE

201 building plans were furnished.

Advice given in the erection of 511 new buildings and the improvement of 723 others.

412 home water systems and 931 lighting systems installed.

41,718 homes screened against flies and mosquitoes.

69 telephone systems were established.

1,501 farmers were furnished plans and induced to adopt systematic crop rotations.

925 new pastures were established.

47 drainage systems were established and 173 farmers induced to drain a part of their farms.

562 farmers were induced to remove stumps from 5,693 acres.

1,371 farmers were induced to terrace 7,492 acres.

3,863 home gardens were improved.

Assisted in 66 road improving demonstrations resulting in 508 miles of improved roads.

6,721 farmers were induced to plant cover crops to be turned under.

Advice and assistance was given in the purchase of 11,431 new labor saving farm implements, tools and machines.

MISCELLANEOUS ACTIVITIES OF THE COUNTY AGENTS

Number of visits by county agents to farmers, club members, business men, etc. -----	22,468
Number miles traveled by county agents -----	287,568
Calls made on agents relative to work (personal) -----	24,608
Calls made on agents relative to work (telephone) -----	15,727
Number farmers' meetings held under the auspices of agents -----	2,782

Total attendance at meetings addressed by agents -----	68,040
Average percent county agents' time in office -----	19%
Average percent county agents' time in field -----	81%
Number official letters written by county agents -----	28,219
Number articles on work prepared for publication by county agents -----	1,060
Number bulletins distributed -----	28,524
Number farmers growing improved seed for sale -----	713
Number farmers keeping cost records -----	1,732
Number of farmers influenced to grow sorghum or sugar cane for syrup -----	5,240

A PARTIAL LIST OF SUCCESSFUL UNDERTAKINGS CONDUCTED IN ONE OR MORE COUNTIES BY COUNTY AGENTS AND SPECIALISTS

Organization Work:

- Organization of Rural Communities for community development.
- Organization of Boys' Agricultural Clubs.
- Organization of County Units, Cotton Association (assistance rendered).
- Organization of County and Community Fairs.
- Organization of Marketing Associations and Clubs.
- Organization of Milk Shipping Stations.
- Organization of Counties for securing official cotton grader.
- Organization of Hog, Corn and Poultry Club, Show and Sale.
- Organization of Bull Associations.
- Organization of County for County Veterinarians.
- Organization of Trips by Farmers to Boll Weevil Territory in Georgia and Alabama.
- Organizations of Live Stock and various breed associations (assistance rendered).
- Organization of Cow Testing Associations.

Campaigns Conducted by Agents:

- Campaigns for Pastures and Wire Fencing.
- Campaigns for Purebred Sires for all Farm Live Stock
- Campaigns for more Alfalfa.
- Campaigns for Cover Crops and Soil Building.
- Campaigns for more and better Live Stock.
- Campaigns for more Home Orchards.
- Campaigns for Introduction of Tobacco Growing.
- Campaigns for Terracing Land.
- Campaigns for Hog Cholera Eradication.
- Campaigns for Preparing the State to meet the Boll Weevil by proper planning of crops in each county.
- Campaigns for Potato Storage Houses.

Cooperative Work of Agents with Farmers and Other Parties:

- In improvement of Seed Corn and Cotton.
- In Standardization by Communities of Cotton and Corn Varieties.
- In Unifying Interests of Farmers and Business Men.
- In Shipments of Hogs and Cattle for Slaughter.
- In Shipping surplus of Corn out of County.
- In Purchase of Fertilizer and Farm Supplies.
- In Holding Bull Association Picnics and Shows.
- In Hog Cholera Control.
- In Live Stock Improvement.
- With State and County Papers in Publishing timely agricultural information.
- In the importation from outside the State the carloads of pure bred dairy and beef cattle and swine.
- In Building Sweet Potato Houses.
- In Holding Live Stock Sales.

Miscellaneous:

- Bee Industry revised on a profitable basis.
- Tractor Demonstrations held.
- Commercial Orchard work promoted in sand-hills.
- Home Mixing Fertilizers promoted where profitable.
- Progress made in securing Diversification of crops.
- Managed Distribution of Government Nitrate Soda.
- Assisted Breeders within the State to dispose of surplus purebred live stock.
- Establishment of new herds of purebred live stock within counties.
- The Grading of Cotton.
- Distribution of Bulletins, Weekly News Notes, Information Cards, News Letters and agricultural information generally.
- Silo Building.

PRINTING AND DISTRIBUTION OF PUBLICATIONS

The work of the Agricultural Editor has been pushed with vigor and has included the following activities:

The publication of bulletins, circulars, posters, and plate matter. Two Extension Bulletins, No. 44, entitled "Fighting the Boll Weevil with Pastures and Fencing", and No. 45, entitled "Peanuts", have been published during the year. One circular, No. 18, entitled "Orchard and Garden Handbook", has been published. Two posters, No. 4, on "Cotton Growing", and No. 5, on "Boll Weevil Conferences", have been issued, and two pages of plate material of six columns each have been furnished free to a list of about sixty newspapers. This material, which consists of plates cast by

the Western Newspaper Union from copy furnished by us, is a comparatively expensive form of publicity, but is now very acceptable to many weekly newspapers because of the labor shortage, and serves us as a means of presenting longer discussions that are suitable for use in the Weekly News Notes or the News Letters.

A new series of publications known as Information Cards was begun during this fiscal year to furnish brief instructions and directions on specific phases of agricultural practice. They are used by the farmers as reference cards, and are copied rather freely by the newspapers. Eleven numbers have been issued.

The Weekly News Notes has been issued regularly, the mailing list having increased from 2,650 to 2,950. The material is now a mixture of agricultural news and agricultural information and suggestion. The articles are brief and timely, and are widely copied by the newspapers. The Agricultural Editor has sought to get the county agents, the teachers of agriculture, the bankers, and others to post the Weekly News Notes in accessible places in order to reach still others not reached directly through the mailing list.

News Letters in the series which was begun during the preceding year have been issued from No. 123 to 260 inclusive. The material used in these News Letters is primarily agricultural News rather than **Instruction**, but no opportunity is lost to tie some instruction and suggestion to the news. The newspaper editors as a whole consider this the most acceptable material sent out.

During the year attention has been given to departments and special articles in agricultural journals and newspapers. Material has been furnished regularly for "Our Extension Service Department" in the Carolina Farmer & Stockman, a "South Carolina Farm News" column in the Progressive Farmer, and special articles have been furnished to the Southern Ruralist, the Breeders' Gazette, and other publications with the idea of giving to our work wider publicity outside the state as well as in the state. Besides this, specially prepared material has been sent from time to time to newspapers in South Carolina. Several more papers have added farm pages or agricultural sections at the suggestion of the Agricultural Editor, and some of these special departments are edited through the assistance of the County Agent or the Agricultural editor or both. A good many papers now have such departments.

Much thought and attention has been given by the Editor to the matter of getting the County Agents to give more attention to the publicity side of their work as a means of promoting the work through a wider knowledge of what is being done. In this way some of the County Agents have been induced to edit farm columns in their local papers and to furnish editors with material from local sources and with material sent from this office, and also to

supply the Agricultural Editor with material to be used in promoting the work in general. This has resulted in putting the County Agents' work more prominently before the people.

Two other phases of the work which are growing in importance are, first, the distribution of agricultural literature including government publications as well as our own; and, secondly, the development of the agricultural library as a source of readily available information for Extension workers as well as College and Experiment Station workers. The volume of requests for agricultural information is increasingly large, and no opportunity is lost to call the attention of farmers to available material. The agricultural library contains Extension Service material from the various states as well as state experiment station material, U. S. Department of Agriculture material, and various other sources of such information, including probably a hundred agricultural journals.

NEGRO DEMONSTRATION

Statistics concerning the negro farmers of South Carolina show that they form a very important factor in our agriculture and that they make large contributions to the wealth of the State. There are approximately 96,000 negro farmers in the State. They operate 3,994,000 acres of which 2,597,000 are improved. During the past ten years negro farmers increased their acreage more than 200,000 acres. The value of their lands exceeds \$189,000,000.00, while the total value of their farm property exceeds \$189,000,000.00. About 45 percent of the cotton crop of the State is grown by negroes.

During the year there have been seven negro agents working in cooperation with the State Agricultural and Mechanical College at Orangeburg, who devote their entire time to bettering the home conditions and the farming of the negro population of the State. The following extracts from the annual report of R. S. Wilkinson, President of the State College at Orangeburg, and who is supervising agent of the negro demonstration work, indicate the nature of the work done together with some of the accomplishments:

"Visits and Publicity. Our agents made 35,731 visits to farmers and received 33,211 requests at their headquarters for information and assistance. They held 137 meetings with a total attendance of approximately 22,000 farmers. The agents traveled 8,226 miles by rail and 20,460 miles by auto and team; distributed 20,438 bulletins, 523 circulars, and made 1,104 visits to agricultural clubs."

"Program. The principal objects which the agents have tried to attain in as large measure as possible are:

A home garden for every farmer.

Larger production of corn and small grain.

Increased production and consumption of eggs, meat and milk.

The planting of orchards.

The organization of canning clubs.

Community improvement meetings.

Cooperative markets for buying and selling.

Acquiring of improved farm machinery.

Thrift and investments in homes.

Better roads."

"Health and Housing. Much of the work of the agents has also directly influenced personal and public health. The supply of fresh and canned vegetables, a more diversified diet, the care of milk and the home making of butter, a more constant supply of fresh meat, eggs, and other wholesome foods, were ideas stressed by the agents, and these have exerted a marked influence upon the general health of the people. The agents also took an active part in the screening of houses, the destruction of flies and mosquitoes and the protection of food against these and other insects. Considerable effort was put forth in 1919 to assist the farmers in beautifying their homes and surroundings, so as to make farm life more attractive, agreeable and profitable."

LIVE STOCK

This project has suffered considerably through the resignation of the specialists during the year. During the two previous years our efforts were directed to increasing the meat supply. Consequently a larger number of steers were fed than formerly. Had the price on finished steers remained at the prevailing prices of last fiscal year our farmers would without doubt have increased their feeding operations. As it was about 3,000 steers were shipped into the State to be finished for the market. Our Beef Cattle Specialist gave assistance in securing about half of this number, and personally selected 415 head.

During the year there were 770 steers fed according to suggestions of our Specialists at an estimated saving of \$10,000.00 over ordinary methods of feeding in use among others who fed steers.

There has been a very encouraging interest in breeding beef cattle this year. Our Specialist selected for farmers this year 35 bulls worth \$16,500.00; 102 purebred cows worth \$35,000.00, and 113 grade cows worth \$11,300.00. Eight new breeding herds have been started in the State during the year and the demand for purebred bulls is on the increase.

One of the main reasons why farmers have succeeded no better with purebred stock has been their failure to properly feed and develop young stock born on their farms. Special efforts have

been put forth to remedy this in South Carolina and excellent results are being obtained along this line. We have stimulated the establishment of permanent pastures in connection with the "Farm Fence Campaign", and in the Southern part of the State many farmers are giving attention to this important matter. Two of the specialists conducted a party of 30 South Carolina farmers to the International Live Stock Show in Chicago at which time many of the farmers purchased some first-class breeding stock. One man brought back the third prize Duroc Jersey pig from the Show.

It is worthy to note that while most other parts of the country saw a decrease in the number of brood sows, this State still has the increased numbers obtained under war conditions. With the coming of the boll weevil, the growing of swine for home use and far the market is making remarkable progress and apparently on a permanent basis. There are in the State now about 700 breeders of purebred hogs of which number about 500 have gone into the business during the past three years. The five most important breeds of hogs, in point of numbers, in the State at present are, the Duroc, Poland China, Berkshire, Hampshire and Tamworth. We have continued to promote the cooperative shipping of hogs in carlots and this has been the means of relieving various parts of the State of a surplus of hogs at prices better than were obtainable locally. Had it not been for the work of our agents in inaugurating these cooperative shipments it is doubtful whether the swine industry would have made anything like the progress it has made, for it is well known that nothing so discourages a farmer as to have a surplus of any product which he cannot sell.

DAIRYING

This project has been hampered to some extent by the frequent changes in the field force. We end the year with three specialists in Dairy Extension work, however, and the prospects are excellent for getting work done.

Bull Associations. This has been our main project this year and South Carolina stands at the head of the list of states in the number of cooperative bull associations. There are now eighteen bull associations in the State as follows:

Name of Association	Number of Bulls
Fountain Inn Jersey Bull Association -----	3
Oconee Jersey Bull Association -----	3
Campobello Jersey Bull Association -----	3
Laurens Jersey Bull Association -----	4
Simpsonville Jersey Bull Association -----	3
Abbeville Jersey Bull Association No. 1 -----	3
Abbeville Jersey Bull Association No. 2 -----	3
Abbeville Jersey Bull Association No. 3 -----	3

Greenwood Jersey Bull Association -----	3
Spartanburg Jersey Bull Association -----	3
Anderson Jersey Bull Association -----	3
Lancaster Jersey Bull Association -----	4
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Total in Jersey Bull Associations -----	37
Marlboro Guernsey Bull Association -----	6
Dillon Guernsey Bull Association -----	8
Marion Guernsey Bull Association -----	4
Sumter Guernsey Bull Association -----	4
Rock Hill Guernsey Bull Association -----	4
Williamsburg Guernsey Bull Association -----	5
<hr/>	
Total in Guernsey Bull Associations -----	31

Other associations are in process of formation. As a means of improving the average quality of the cattle in a county we have found no method equal to the bull associations. Following the placing of the bulls in every association organized, many of the members immediately began to take steps to secure purebred females to breed to the excellent bulls belonging to the association. A number of picnics were held at the time the bulls were exchanged and at these picnics exhibits were made of the daughters of the association bulls. The evident improvement obtained by the members in using good bulls were thus made so plain to everyone that the bull association idea has gained great impetus this year.

Cattle Purchased. The dairy specialists have assisted in the purchase of twenty-six bulls, and sixty-nine cows and heifers, all purebred from points outside the State.

Plans and assistance were given in the building of two silos, seven dairy barns, four milk houses, and three bull barns.

The demand for purebred dairy cattle of the Jersey, Guernsey and Holstein breeds is increasing and we are guiding this demand toward the purchase of good foundation stock.

The pioneer Cow Testing Association organized last year now has nine members owning 201 cows. Many excellent official records are being made by cows belonging to members of this Association.

POULTRY HUSBANDRY

Following is a list of the farms in each County and the number of fowls under the supervision of the Poultry Division:

Pure Bred Poultry Under Supervision

County	Number of farms	Number of fowls
Charleston -----	5 -----	1,600
Chesterfield -----	3 -----	500
Clarendon -----	1 -----	200
Darlington -----	1 -----	250
Florence -----	2 -----	400
Greenville -----	5 -----	450
Lee -----	4 -----	650
Marlboro -----	5 -----	1,200
Richland -----	3 -----	2,600
Spartanburg -----	4 -----	1,525
Sumter -----	6 -----	900
Union -----	2 -----	200
	41	10,475

Other poultry plants were visited at the request of the owners and some of these will be operated under our supervision next year. The primary object in establishing the pure bred poultry farms and assisting in their development is to obtain reliable breeding centers at which the popular breeds of poultry can be purchased by nearby poultrymen at reasonable prices.

This demonstration work has in five years resulted in the building up of these forty farms on which pure bred poultry is raised, as well as others that do not receive our constant supervision. Before the demonstration work was commenced there were practically none of these poultry farms in operation. Since a greater profit can be made by breeding pure bred poultry of the highest quality and selling the breeding stock, baby chicks and hatching eggs at more than market prices, these demonstrations have been encouraged to improve the quality of their flocks of poultry and to exhibit their best specimens at County Fairs and the State Poultry Show.

The latter exhibition is conducted annually by the South Carolina Poultry Breeders' Association, an organization which was brought about five years ago through the efforts of the Poultry Division. This organization has been responsible for a great portion of the success of the poultry industry of South Carolina. The Annual State Poultry Shows held in connection with the State Fair at Columbia have an entry of from 900 to 1,500 pure bred fowls. At the next show in October 1920, the Southern Meet of the Rhode the next show in October, 1920, the Southern Meet of the Rhode Rhode Island Reds will be sent to Columbia from the States of North and South Carolina, Tennessee, Georgia, Alabama, Mississippi and Florida, in which States the several hundred members of the Rhode Island Red Club reside.

Another important service of the South Carolina Poultry Breeders' Association is the sale of incubators, brooders, coops, foods, leg bands, remedies, books and magazines to the members of the Association at a reduction from the retail prices. One prominent incubator company allows our members a discount of 35 percent from the regular prices, and over \$500.00 in orders have been sent in to this concern this year. The poultry foods are made in Charleston, S. C., and are sold at considerably less than similar foods can be bought elsewhere. Only the most reliable and successful appliances, foods and remedies are listed in the circular and confidential letter sent to each member. This circular also contains a list of the members of the Association, of which there are 233 at the end of this fiscal year, as well as the variety of pure bred poultry bred by each member.

One of the outstanding features of the State Poultry Show is placing the name and address of the owner of each fowl on exhibition on the coop it occupies. Every visitor could tell the owner of any fowl, and if that fowl was for sale the selling price also appeared on the card. As a result of this publicity and selling campaign \$1,5000.00 passed through the Association for pure bred poultry bought by residents of this State at the Poultry Show. The policy of this Division has always been to improve the quality and increase the number of pure bred poultry grown in this State, and then to make it possible for these breeders to sell their surplus stock advantageously and at the same time establish another breeder in the poultry business. A poultry campaign is underway to place a breeding pen of pure bred poultry, a small incubator and a brooder on every farm in the State. By doing this the production of poultry will be materially increased and the chickens will be hatched at the most profitable season of the year.

The high prices of food stuffs have materially reduced the number of poultry and pigeons kept in South Carolina for supplying the market with eating eggs and squabs. The former business has not received any encouragement from this Division in recent years, because these so-called egg farms must compete with the eggs laid by hens around the farm buildings that live on waste grain and meal. The special poultry farm cannot overcome the competition of the farm hen, but the pure bred hen which produces eggs for hatching, baby chicks, and breeding stock is a money maker because her products are sold at a higher price and she does not have the competition of hens of poor breed.

Practically all the pigeon plants have been discontinued, as pigeons in confinement will not make a profitable production of squabs unless they receive special food containing a liberal percentage of peas.

Every poultry and pigeon breeder is advised to plant a sufficient acreage of small yellow corn and peas to feed his flock of poultry or pigeons the coming year.

The following breeds of poultry have been kept at Clemson College for several years and their quality has been constantly improved: Barred Plymouth Rocks, White Wyandottes, S. C. Rhode Island Reds, Buff Orpingtons, S. C. White Leghorns, Dark Cornish (Indian Games), and Black Langshans.

Specimens of these breeds are kept at Clemson College mainly for illustrating to the students of Poultry Husbandry and to others the standard points of the seven breeds. This work is quite popular and every student obtains at first hand the proper shape and color and the method of judging fowls used in the Show room.

Several hundred chicks were hatched by hot air and hot water incubators. They are being raised in hot air brooders, and when mature will be either kept for the breeding pens or distributed by the College.

Classes in Poultry Husbandry were conducted at Clemson College during the Spring Term. In these classes there were 26 Seniors, 35 One Year Agricultural Students, and 41 Federal Board Students or returned soldiers who were being educated at the expense of the War Department. These students completed a course which embraced the breeds of poultry, the housing, and feeding of young and old fowls, and the incubation and brooding of chicks, and since many of them live in South Carolina and intend to carry on this better poultry work after they return home they will increase the interest in poultry in their locality. A former student living at Greer in Spartanburg County has one of the best strains of S. C. White Leghorns in the State.

Addresses have been delivered on the poultry business, and the poultry exhibits at the Marion, Sumter, Chester and Union County Fairs have been judged. At each of these Fairs the defects as well as the merits of the competing specimens have been shown the owners and suggestions offered for the improvement of the different flocks.

The fifth edition of Extension Bulletin No. 16, "Poultry Culture for South Carolina" is still in print and copies of this popular bulletin are being sent out daily.

A heavy correspondence has been attended to, and all inquiries received from poultry pigeon and pet stock breeders have been answered.

AGRONOMY

Cotton Varieties for Boll Weevil Conditions. To help lessen the damage from the boll weevil, now advancing so rapidly in South Carolina, the Extension Service has tested during the last three

years about twenty of the best varieties of cotton with reference to early maturing. This work was conducted in Edgefield, Aiken, Bernwell, Hampton, Beaufort and Charleston Counties to determine the varieties best suited to beat the boll weevil.

From the results so far obtained and from observation as to fruiting and growth, the short staple varieties recommended for South Carolina conditions are Cleveland, Cook, Dixie Triumph and Dixie.

On land free from wilt Cleveland Big Boll has given the best average results, and this is considered one of the best varieties for South Carolina, if land is entirely free of wilt.

Cook ranks among the highest yielding varieties in the State, but is not as generally grown, because anthracnose or boll rot is worse in this variety than in any other.

Dixie Triumph is the earliest and highest yielding wilt-resistant variety tested, and can be recommended for wilt-infested land. Dixie has also made good yields on wilt-infested land, but is it not as early as Dixie Triumph.

Among long staple varieties Webber 49 and Webber 82 are the earliest tested. Webber 49 fruits and matures a little earlier than Webber 82. Both are well adapted to the State where wilt does not occur, as they fruit practically as early as the short staples and frequently yield as much seed cotton per acre.

Seed of any of the above varieties can be obtained from breeders in the State who, for several years, have been selecting and breeding for earliness.

Corn Breeding Work. Two main objects are in view in carrying on this work, first, to single out by systematic variety tests from year to year the highest yielding varieties suitable for the three main sections of the State, namely, the Piedmont section, the Pee Dee section, and the Coastal Plain section. Second, to systematically breed up these high yielding varieties in large enough quantities so that farmers in the surrounding territory will have seed corn at a reasonable price. In order to do this work the State has been divided into twelve different sections and breeding work attempted with one man in each of the sections.

The following is a list of the varieties of corn in the 1919 tests and with which breeding work has been done:

Baldwin Red Cob, Henderson's Yellow, Drake's Prolific, Marlboro Prolific, Garrick's Prolific, Pee Dee No. 5, Lightsey's Two-Eared, Johnson's Yellow, Lowman's Yellow, Douthit's Prolific, Coker's Williamson, Weekly Prolific, Brunson, Wannamaker's Two Eared, Goodman's Prolific, Brunson, Belmont, McMakin, Mosby's Prolific and Baldwin White Cob.

At both of the sub-experiment stations Douthit's Prolific led the

test, and in the two variety tests with farmers Garrick's Prolific led in one and Marlboro Prolific in the other.

HORTICULTURE

Work in this project naturally divides itself into the following sub-projects: Orcharding, sweet potato curing and storage, vegetable gardening and trucking, cooperative canneries, and office work.

Orcharding. The object of the work in orcharding is to further develop and maintain home and commercial orchards in South Carolina. This work is state-wide and is outlined in such a way as to carry each demonstration orchard over a maximum period of three years. Due to the shortage of good nursery stock last fall orchard development has been somewhat handicapped. More interest is being taken in home and commercial orchards and several small nurseries have been started within the year to promote the fruit industry in certain sections.

In all, the horticultural specialists supervised 459 orchard demonstrations in all parts of the state involving a total of 86,482 trees.

Sweet Potato Curing and Storage. The object of this project is that of using the successfully operated curing and storage house as a unit through which to further develop and maintain the sweet potato growing industry in South Carolina. This work is in its third year and has grown to such proportions as to attract considerable interest on the part of farmers and others. We are at present assisting in the organization of growers and warehousemen in the State. The acreage is greatly increased this season. Nineteen potato houses have been built according to approved plans during the year making a total in the state of seventy. There are now ninety-three prospective houses to be built this season.

Vegetable Gardening and Trucking. Our specialists have conducted 94 vegetable and trucking demonstrations for the purpose of stimulating and encouraging more and better gardens, and for marketing and conservation of the surplus. Some phases of this work have been in cooperation with the Home Demonstration forces. One thousand and thirty-six bushels of sweet potatoes were treated to prevent disease and 1150 bushels of disease free seed were selected for our people from points outside the state. Assistance was given in the purchase of 1500 potato barrels. One irrigation system for truck growing was installed.

Cooperative Canneries. This work was originally started as a war measure to encourage the saving of more food products. During the season there were 25,000 No. 3 cans of fruits and vegetables packed in these canneries at an approximate saving of \$2,084.00.

Office Work consisted of correspondence, and arranging needed

publications. The specialists have given assistance in the purchase of nursery stock and spray pumps and thereby saved beginners in these lines a total of \$4,000.00. Seventy spray pumps of the barrel type were purchased with the advice and assistance of specialists-

MARKETING

Surveys have been conducted along several lines in order that accurate and first hand information could be secured relative to the South Carolina Agricultural crops to serve as a basis for special phases of marketing work in this State.

A careful study of each truck crop was made when shipping season began. Methods of handling, packing, grading and marketing were studied. Freight rates, refrigeration rates, railroads used, services received in way of special truck trains, and markets reached were also studied.

The crops studied were cucumbers, cantaloupes, beans, watermelons, peaches, Irish potatoes and sweet potatoes. A survey revealed the fact that some 3,000 cars of Irish potatoes were shipped during the season, 1,500 cars of cantaloupes and 2,000 cars of melons, about 50 cars of peaches and 10 cars of sweet potatoes. The majority of Irish potatoes were handled by two cooperative organizations. Grading was fair within the organizations, but outside there was no uniformity. Watermelons, cucumbers, cantaloupes, peaches, and sweet potatoes were handled by individuals and the grading and marketing practices were found to be very poor.

A study was made of the corn crop of the State. Practices in counties in which a surplus of corn was found was studied. Farmers complained that their home mills paid more for Western corn than they could receive for theirs. Found farmers desirous of selling corn in shuck and mills demand shelled corn in even weight bags and corn well graded. This information was passed on to the farmers and a list of shelling plants was made.

In view of the fact that our State is changing to a diversified program of farming and is planting 50,000 acres of peanuts this year the marketing of this crop has been given considerable study. This is the first commercial peanut crop for South Carolina and it is expected that a great deal of assistance will be needed by the farmers in the preparation and marketing of this crop.

Surveys of milk and meat markets in several cities in this State were made during the year in order to find out why certain cities were paying less than market prices for hogs and sweet milk. This was done in order to be able to advise the producers wherein the trouble lay and to assist them in securing market prices for their products on home and foreign markets.

A study of cooperative shipments of hogs, in transit and at markets was made. The handling of cars; extra time in transit; extra feed bills and custom of marketing all hogs soft at the markets where hogs showed least sign of softness was studied. Hogs sent this year to the same markets as last and fed on the same feed were found soft this year and hard last year. Cars were followed to local or State markets and to markets outside of State. A study revealed degrees of softness and a prejudice against all hogs out of soft hog territory. In other words, all our hogs are soft until found hard and are sold on that basis at terminal markets.

After a careful study of growers and practices followed in melon, cucumber and cantaloupe section of this State; which section includes the Counties of Allendale, Barnwell, Aiken, Jasper, Bamberg, Hampton, Charleston and Beaufort, an organization of melon growers was effected to bring about a better system of grading and marketing of cantaloupes, cucumbers and watermelons. Williston, S. C., was selected as the principal office and shipping point.

In view of the boll weevil changing the farm crops in certain counties of this State, there was a need to form a Marketing Association in certain counties in the boll weevil area so as to provide a ready market or clearing house for all farm produce. In Colleton County assistance was given in the formation of such an Association. This Association plans to furnish the farmers of Colleton and adjoining counties a ready market for all farm crops in any quantity, provided properly graded. And, with the help of the Field Agent in Marketing and a Market Agent for the Association, trained by the Field Agent in Marketing, the people will be taught grades and what proper grading means.

In other counties where there was an undue alarm over the advent of the boll weevil and a desire for a Marketing Association because some other County had such an Association, although no real need of one, the idea was discouraged, because in South Carolina as elsewhere Associations will not live on sentiment alone.

Packing, crating and loading: Several demonstrations were given at sweet potato houses and loading points within the State in the crating, packing and loading for shipment of Irish potatoes, sweet potatoes, and cantaloupes. Found a great need for this kind of work among the inexperienced shippers.

The following is a general summary of other work done:

Furnishing individuals and Association information concerning grades, containers and loading rules for different truck crops.

Advising growers where crates and containers might be purchased, also grading machines, pickers and other accessories needed in successful marketing.

Advised individuals as to markets for certain crops in both express and carlots. Put growers in touch with buyers.

Assisted in making rules for grading and handling of produce in cooperative organizations. Placed this before individuals.

Assisted in the organization of cooperative purchasing and marketing associations.

Assisted in giving all growers of truck crops market news service when it was a benefit to the grower.

Urged the adoption of grades and standards with individuals and associations for all products offered for sale.

Assisted one hundred cattle feeders in the State in finding a market for two hundred cars of beef cattle.

Assisted twenty-five hog shippers in deciding on a market to ship their hogs to. Advised them of prices paid on various markets and of markets ready to receive Southern hogs.

Assisted farmers in securing a supply of following seed from other States: soy beans, velvet beans, crimson clover, burr clover, peanuts and lespedeza.

Attended sixty farmers meetings and discussed some phase of marketing at fifty of these meetings. Total attendance estimated at 8,000.

ENTOMOLOGY

Work in this project has been conducted along two lines: (a) The Control of Injurious Insects, (b) Bee-Keeping.

The insect work has been principally in connection with **boll weevil control** though there were some demands for assistance on forest and greenhouse insects. Great emphasis has been placed on the necessity of cotton growers regarding the boll weevil as a permanent limiting factor in cotton production.

Farmers have been calling constantly for reliable information in regard to poisoning the boll weevil. In cooperation with the U. S. Department of Agriculture Laboratory at Tallulah, La., we have made available to the people of the State all the information that has been developed at that laboratory. We have also kept in touch with the Entomological Divisions of other states west of us and have made use of the experience of these states in preparing information on boll weevil control. There is a very strong tendency on the part of planters to purchase hand dusting guns and then allot too large an acre to each gun. An active campaign has been made to have this corrected so as to prevent unnecessary failures and losses in 1920. Such failures would naturally give a set-back to boll weevil poisoning by any method while as a matter of fact there is great hope that this method of boll weevil control will prove of great value.

At this time it seems that the wheel traction type of dusting machine is likely to be most effective and work this season will be

to see that all types of machines purchased by farmers are given a fair trial. Very few machines, except hand guns, are available for this season's work. However, it is likely that the experiences of farmers this year will serve to guide them in the future in the poisoning work and it is for that reason that we want to keep in close touch with the dusting work and see that it is properly demonstrated on as large a scale as is possible.

Bee-Keeping. Interest in Bee-Keeping has developed beyond our expectations. The requests for help have far outgrown our ability to meet. In order to meet the needs as far as possible this work is confined to educational work and demonstrations in (1) wintering, (2) prevention of swarming, (3) transferring, (4) and requeening. For the purpose of demonstrating in a more definite way the principles of bee yard management a chain of twenty-one demonstration apiaries have been located over the state. These are so arranged as to include some demonstrations in the Piedmont, Sand Hills, and Coastal belt. These demonstration apiaries vary in size from a few to a dozen colonies. Besides giving promise of an increased revenue in honey our bee-keepers are beginning to diversify, some giving their entire attention to the production of extracted honey, others having engaged in the business of selling bees by the pound while still others are making their plans for rearing three banded Italian queens for sale.

BOYS' CLUB WORK

Club work with boys has included, Corn Clubs, Pig Clubs, Wheat Clubs and Calf Clubs.

Corn Clubs. There were 516 members of Boys' Corn Clubs, who produced 16,029 bushels of corn or an average of 37.9 bushels per acre, at a cost of \$12,047.33, or an average of 77 cents per bushel, showing a net profit of \$19,410.69.

The winner of the first prize, William Campbell, of York County, produced 97.9 bushels at a cost of 26 cents per bushel.

The winner of the second prize, James W. Draffin, of York County, produced 100 bushels at a cost of 29 cents per bushel.

The winner of the third prize, Hallum Smith, of Colleton County, produced 112 bushels at a cost of 60 cents per bushel.

Three members made 100 bushels or more per acre.

Pig Clubs. There were 1,740 members of Pig Clubs enrolled in Pig Club work, the money value of their products being \$121,882.30. These youngsters purchased 1,740 pigs, the original cost of which was \$47,961.49, which leaves a difference representing the increased value of the pigs while in the hands of club members of \$73,920.81. The Pig Club work was conducted under three phases, namely, the feeding class, the breeding class, and the sow and litter

class. The average cost of the gains made in each class were—in feeding class, 14 cents per pound, in breeding class, $12\frac{1}{2}$ cents per pound, in sow and litter class, $11\frac{1}{2}$ cents per pound. The average cost of the gains per pound in all three classes of Pig Club work was $12\frac{2}{3}$ cents.

The State prize winners were as follows:

First, Johnsie Smith, Lee County, in the breeding class; second, Howard Norris, Darlington County, in the breeding class; third, Bettie Turner of Fairfield County, in the sow and litter class. The Grand Sweepstakes offered to the member making best records in two or more phases of club work was won by Johnnie Barrett, of Lancaster County.

A new feature of pig club work in 1919 was the holding of the Boys' Club Live Stock Judging Contest at the State Fair. In this contest over 100 members participated, and three purebred pigs were awarded by breeders in the State as prizes for winners in the contest.

Wheat Clubs. Tommie Drake of Anderson County, won first prize in the Wheat Clubs with a production of 28 bushels per acre at a cost of 72 cents per bushel. Henry LaMaster of Cherokee County, won second place with a production of $21\frac{1}{2}$ bushels at a cost of 91 cents per bushel.

The total enrollment in all kinds of Boys' Clubs was 2,373. These were in 34 counties, the other 12 counties not having clubs.

The total value of all commodities produced by club members was \$165,090.15. The cost of production was \$63,643.60, which leaves \$101,446.55 as the net money value of the activities of club members.

The State prize winners were entertained delightfully in Spartanburg by the Spartanburg Chamber of Commerce at which time the various prizes were awarded.

COTTON GRADING AND MARKETING

This project was enlarged this year by the placing of official cotton graders at seven points, namely, Orangeburg, Darlington, Sumter, Manning, Greenwood, Anderson and Laurens. Funds for the support of this work have come largely from the counties where this work is established. The cotton graders and classers are trained and experienced cotton men and their work is to classify cotton using the U. S. Government grades as the standard. 90,721 bales have been graded during the year. We have received many letters from farmers, bankers and others indicating the great value and need for this work. In order that this work may properly expand and develop we have entered an agreement with the U. S. Department of Agriculture, the South Carolina Division of the Amer-

ican Cotton Association, and the State Warehouse Commissioner for the joint conduct of the work. Under this agreement the Extension Service and the U. S. Bureau of Markets is to secure, train and supervise competent graders in those counties where the county branches of the Cotton Association desire them and will raise the necessary funds for the county cooperation. These graders in cooperation with the county agents and marketing specialists will also look after the local interests in the matter of marketing crops other than cotton. Other phases of the agreement assign responsibility and privileges to each of the parties to the agreement.

Report of The Fertilizer Board

November 29, 1920.

Dr. W. M. Riggs, President,
Clemson College, S. C.

Dear Sir:

I respectfully submit the following report of the Fertilizer Department to this date for the fiscal year ending June the 30th, 1920.

The tonnage of commercial fertilizers sold in this State as shown by the sales of tags is 1,249,926 tons, exceeding the total of last year by 216,039 tons. These figures indicate according to statistics furnished by the Southern Fertilizer Association, that South Carolina leads every other Southern State in the use of commercial fertilizers. This use was greatly curtailed in all the States by war conditions; but these same statistics show the resumption of their normal use has been rather slow in those States where boll weevil infestation first occurred.

In the fall and early winter months of this season alleged shortage of transportation facilities by the Railways delayed getting the usual supplies of acid phosphate, ammoniates and other materials, so the season opened later than usual with some uncertainties as to the final outcome. These causes led to enhanced prices and to a less uniform and satisfactory distribution of fertilizers to farmers in different sections of the State in time for their application with best results in agricultural production.

Inspection

Twelve inspectors entered upon their work, each in his allotted district, on January 12th and the work was made as intensive and thorough as possible. Several changes in the personnel of this force were made, and their places filled by appointment of our graduates and ex-soldiers. Nineteen hundred and sixty seven samples were collected by these inspectors during the season; of these 309 were duplicates and sixteen hundred and sixty eight were sent to the Chemists for analysis. Soon as completed, all these were compiled in an annual bulletin and distributed through our entire mailing list. Beside these, 128 samples were sent in and analyzed for individual farmers and purchasers under the law made for their special benefit.

For the purpose of comparison with last year's work the following exhibit is submitted, as will more fully appear in Dr. Brackett's detailed report.

	1919-1920	1918-1919
Fertilizers other than meal sold --	1,183,978 Tons	887,065 Tons
Cotton Seed Meal sold -----	69,912 "	146,822 "
No. official samples analyzed -----	1,668 "	1,301 "
No. farmers samples analyzed ---	128 "	136 "

A detailed statement of the expenses of this Department will appear in the Treasurer's itemized report to which I respectfully refer.

Respectfully submitted,

H. M. STACKHOUSE.

Report of The Chief Chemist

Clemson College, S. C., August 30, 1920.

Dr. W. M. Riggs, President,

Clemson College, S. C.

Dear Sir:

I respectfully submit the following report of the work on commercial fertilizers, waters, etc., done for the Board of Trustees, Fertilizer Control, and for the citizens of the State, and of the referee and collaborative work, during the year ending June 30th, 1920. For the sake of comparison the figures for last year are given side by side with this year:

	1918-1919	1919-1920
Official fertilizer samples -----	1301	1668
Farmers' samples of fertilizers -----	136	134
Ores, minerals, etc., for identification ----	35	25
Waters -----	58	45
Limestones, marls, and lime -----	2	6
Ashes (wood, peat, manure, moss, coal) --	6	1
Assays for gold and silver -----	4	7
Miscellaneous -----	23	55
	<hr/> 1565	<hr/> 1941

The most striking facts brought out by a study of this table are: First, that the number of official fertilizer samples has increased this season over last by 367, or about 28 per cent.; and second, that the total number of samples has increased by 376, or about 24 per cent. over last season. The table also shows that the number of miscellaneous samples has increased about 58 per cent. this season over last. This increase in miscellaneous samples was largely due to the anxiety of farmers about the presence of borax in fertilizing materials.

DISCUSSION OF THE RESULTS OF THE ANALYSES

The following discussion of the results of the analyses of the official samples of fertilizers inspected during the season 1919-20 is taken from the annual report of the analytical work of the Chemical Department made to the President of the College by the Chief Chemist:

OFFICIAL FERTILIZER SAMPLES CLASSIFICATION

	1918-19	1919-20
Complete fertilizers -----	549	1001
Home mixtures -----	1	0
Special mixtures (phos. acid and ammonia) -----	358	284
Acid phosphates -----	69	81
Acid phosphates with potash -----	6	14
Cotton seed meals -----	204	95
Nitrate of soda -----	11	41
American potash -----	49	14
Foreign potash -----	0	75
Dried blood -----	15	4
Fish -----	11	43
Tankage -----	8	1
Sulphate of ammonia -----	1	0
Miscellaneous -----	19	15
	<hr/> 1301	<hr/> 1668

DEFICIENT SAMPLES

Of the 1668 samples above listed, seventeen are omitted from the discussion which follows. These seventeen samples are:

Nine complete fertilizers and one cotton seed meal, the analysis of which for good and sufficient reasons were not published by the Secretary of Board of Fertilizer Control; two samples each of castor pomace and ground phosphate rock; one sample each of duplex basic slag, nitro-po (a mixture of nitrate of soda and nitrate of potash), and a nitrate of soda without guarantee.

Of the remaining 1651 samples 327 fell below the commercial value based on the guarantee. They were as follows:

In available phosphoric acid -----	35
In ammonia -----	116
In potash -----	41
In available phosphoric acid and ammonia -----	45
In available phosphoric acid and potash -----	16
In ammonia and potash -----	59
In available phosphoric acid, ammonia and potash --	15
	<hr/> 327

Last season out of 1272 samples, 313, or 24.6 per cent. were deficient in commercial value based on guarantee, while this season the number so deficient is 327 out of 1651, or 19.81 per cent., a considerable decrease.

The extent to which these 327 samples fell below the guaranteed analyses in per cent. is as follows:

	0-0.10	0.1-0.25	0.25-0.50	0.50-1	1 and over
In available phosphoric acid	26	27	24	24	13
In ammonia -----	58	58	49	49	23
In potash -----	20	24	34	28	22
	<hr/> 104	<hr/> 109	<hr/> 107	<hr/> 101	<hr/> 58

This is a much worse showing than last season in all three ingredients, but especially in available phosphoric acid and ammonia.

Of the 327 samples which fell below the commercial value based on guarantee, 150 samples fell three per cent. or more below that value. They are as follows:

In available phosphoric acid -----	12
In ammonia -----	63
In potash -----	16
In available phosphoric acid and ammonia -----	17
In available phosphoric acid and potash -----	3
In ammonia and potash -----	29
In available phosphoric acid, ammonia and potash --	10
	<hr/>
	150

Last season out of 313 samples which were deficient in commercial value based on guarantee, 144, or 46 per cent., were three per cent. or more deficient, while this season the number so deficient is 150 out of 327, or 45.87 per cent., a trifling decrease. As compared with the total number of samples, last season 144 out of 1301, or about 11 per cent., were three per cent. or more deficient in commercial value based on guarantee, and this season 150 out of 1668, or about nine per cent., a slight decrease.

The extent to which the 150 samples, which were deficient in commercial value three per cent. or more based on guarantee, fell below the guaranteed analysis in per cent. is as follows:

	0-0.10	0.1-0.25	0.25-0.50	0.50-1	1 and over
In available phosphoric acid	6	4	9	15	10
In ammonia -----	9	19	24	43	23
In potash -----	5	6	20	11	18
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	20	29	53	69	51

In addition to the 327 samples deficient in commercial value based on guarantee, there were 519 samples which were below guarantee in one or more ingredients, the deficiency being made up, however, by an excess of other constituents. They are as follows:

ANALYSES OF COMMERCIAL FERTILIZERS

65

In available phosphoric acid -----	167
In ammonia -----	123
In potash -----	193
In available phosphoric acid and ammonia -----	9
In available phosphoric acid and potash -----	17
In ammonia and potash -----	10
	<hr/>
	519

Last season, out of 1272 samples, 362 or 28.45 per cent., were deficient in one or more ingredients, but not deficient in commercial value based on guarantee, while this season the number so deficient is 519 out of 1651, or 31.44 per cent., a slight increase.

The extent to which these 519 samples fell below the guaranteed analysis in per cent. is as follows:

	0-0.10	0.1-0.25	0.25-0.50	0.50-1	1 and over
In available phosphoric acid	51	47	39	41	13
In ammonia -----	70	65	9	0	0
In potash -----	53	79	56	29	4
	<hr/> 174	<hr/> 191	<hr/> 104	<hr/> 70	<hr/> 17

This is a much worse showing than last year both in available phosphoric acid and potash, though somewhat better in ammonia.

In connection with the subject of deficient, the results of some of the analyses this season as compared with last season are interesting:

Acid Phosphates	1918-1919	1919-1920
Guaranteed 16 per cent --	69	76
Deficient -----	9 (13.04%)	19 (25%)
Deficient three per cent. or more -----	0	8 (10.53%)

This shows a very great falling off in the quality of the acid phosphates on the market this season as compared with last, and is probably due in large measure to the delays in obtaining phosphate rock occasioned by strikes and transportation difficulties, necessitating hurried manufacture and the shipment of the product insufficiently cured, in order to meet the demands of the market. Three samples of the guarantee 14% were analysed this season, of which two met their guarantees and the third was not three per cent. deficient, while the single sample of this guarantee received last season was three per cent. deficient in commercial value. One sample of the guarantee 18% was analysed this season and was found deficient but not three per cent. There was also one sample of 11% guarantee analysed this season and found up to its guarantee.

Acid Phosphate with Potash.—Fourteen samples of these goods were analysed this season. One sample 9-0-3, deficient in potash, but not in commercial value. Two samples each: 8-0-3, one deficient in potash, but not in commercial value, and one deficient in phosphoric acid, but not three per cent. in commercial value; 10-0-2, one up to its guarantee, and one deficient in phosphoric acid, but not three per cent. in commercial value.

Three samples 10-0-3, of which two met their guarantees, and one deficient in potash, but not three per cent. in commercial value. Six samples 10-0-4; one up to guarantee; two not deficient in commercial value, but one of them deficient in potash and the other in available phosphoric acid; one deficient in available phosphoric acid, and in commercial value, but not three per cent.; two deficient three per cent. in commercial value, one being deficient in potash and the other in both phosphoric acid and potash. Last season we had six samples only of such goods: one each, 8-0-4 and 10-0-2, the former deficient in potash, but not three per cent. in commercial value, the latter well up to its guarantee; four samples of the guarantee 10-0-4, of which three samples were well over their guarantees, and the fourth deficient in potash, but not deficient in commercial value.

That the supply of potash was much larger this season than last is shown not only by the fact that there were more than twice as many acid phosphates with potash this season, but by the increase

in the potash salts from 49 to 89, and also by the increase of the samples of complete fertilizers from 549 last season to 1001 this year. The potash salts were chiefly foreign, 75 out of 89, and the 14 samples of domestic potash were at least half old stock brought over from last season. Though it is reported that the domestic potash producers were working to capacity last season, apparently very little of the product got on the southern fertilizer market as such.

In connection with the potash deficiencies not only in acid phosphates with potash, but also in mixed goods, the following summary for the last sixteen years may prove interesting. It is to be noted that none of the deficient samples here listed is deficient in commercial value:

Year	Number of Samples	Deficient in One or More Ingredients	Deficient in Potash Only	Deficient in Potash Per Cent.
1905	522	165	53	32.12
1906	655	201	62	30.84
1907	743	153	34	22.22
1908	713	161	54	33.54
1909	805	197	85	43.14
1910	1188	235	86	36.60
1911	1605	393	182	46.31
1912	1689	380	225	59.21
1913	1922	389	90	23.13
1914	2537	534	113	21.16
1915	1227	333	107	32.13
1916	1598	378	54	14.28
1917	1594	477	75	15.72
1918	1474	438	68	15.52
1919	1301	362	100	27.62
1920	1668	519	193	37.19

This summary shows that of the samples deficient in one or more ingredients, but not deficient in commercial value, a very large percentage are deficient in potash only. This deficiency was especially large during the years 1909 to 1912, inclusive. There was a marked drop in the years 1913 and 1914, but in 1915 the percentage deficiency was the same as in 1905. The figures for 1916 are not very significant on account of the small number of fertilizers on the market containing potash. The percentage deficiency in 1919 was considerably greater than in 1917 and 1918, when it was small and about the same. It will be noted that the percentage deficiency this year, 1920, is larger than it was in 1910, and higher than it has been since 1912, when the maximum of the results thus far recorded was reached.

Top Dressers:—The goods of this class falling into our hands this season have been of considerably better quality than was the case last season. We have had this year fifty-nine samples, of which twenty-one, or 35.6 per cent., were deficient in commercial value, and of these fifteen, or 25.42 per cent., were deficient three per cent. or more in commercial value, based on the whole number of samples. Last season out of thirty samples, seventeen, or 56.66 per cent., were deficient in commercial value, and of these thirteen were deficient three per cent. or more in commercial value, or 43.44 per cent. of the whole number.

One each of the following guarantees was analysed with the results indicated and a comparison with last year: 5.75-6.10-0, found up to guarantee, as was also the case last year; 4-7-2, not deficient in commercial value, but in potash, last year none of this guarantee; 4-7½-1, deficient in ammonia but not in commercial value, last year none of this guarantee; 8-7½-1, found up to guarantee, last year none of this guarantee; 7-8-2, deficient in ammonia, but not three per cent.; last year none of this guarantee; 3-8-0, deficient in ammonia, but not in commercial value, last year none of this guarantee; 2-10-2, deficient in ammonia, but not three per cent., last year none of this guarantee; 6-5-0, deficient in ammonia, but not in commercial value, last year one sample deficient in phosphoric acid, but not in commercial value. The variations in guarantees of this class of goods is chiefly in potash, and appears to depend on the supply of potash available.

Two samples of the following guarantee: 4-7½-2, one up to guarantee, and the other deficient in potash, but not deficient in commercial value.

Five samples of the guarantee 7-8-3, of which two were found up to guarantee; one deficient in ammonia, but not in commercial value; two samples three per cent. or more deficient in commercial value, one being deficient in ammonia, the other in ammonia and potash.

Six samples of the guarantee 4-7½-2½, one found up to guarantee; two not deficient in commercial value, but one deficient in ammonia and the other in potash; one not three per cent. deficient in commercial value, but deficient in ammonia and potash; two samples three per cent. or more deficient in commercial value, and deficient in ammonia and potash.

Nine samples of the guarantee 0-9-3, of which five were found up to guarantee; two not deficient in commercial value, but one deficient in ammonia, and the other in potash; two samples three per cent. or more deficient in commercial value, and deficient in ammonia.

Thirteen samples of the guarantee 4-7½-0, of which five were found up to guarantee; one not deficient in commercial value, but in ammonia; one not three per cent. deficient in commercial value, but in ammonia; six samples three per cent. or more deficient in commercial value, and all deficient in ammonia.

Sixteen samples of the guarantee 2-7-0, of which nine were found up to guarantee; three not deficient in commercial value, but two deficient in ammonia and one in phosphoric acid; one sample not three per cent. deficient in commercial value, but in ammonia; three samples three per cent. or more deficient in commercial value, and all deficient in ammonia. These goods were mixtures of fish tankage and nitrate of soda, but appear to have been sold under the name of "Palmetto Fish Tankage".

AVERAGES OF ANALYSES

Acid Phosphates

	1918-1919		1919-1920	
	Found	Guaranteed	Found	Guaranteed
Available phosphoric acid--	16.86	15.97	16.47	15.88
Insoluble phosphoric acid--	0.59		0.57	
Total phosphoric acid-----	17.45		17.04	
Special Mixtures (Acid Phosphate with Ammonia)				
Available phosphoric acid--	8.84	8.22	8.52	7.94
Insoluble phosphoric acid--	0.70		1.04	
Total phosphoric acid-----	9.54		9.56	
Ammonia -----	3.39	3.35	3.72	3.69
Complete Fertilizers				
Available phosphoric acid--	8.82	8.25	8.64	8.09
Insoluble phosphoric acid--	0.74		0.80	
Total phosphoric acid-----	9.56		9.44	
Ammonia -----	2.95	2.82	3.27	3.06
Potash soluble in water---	2.23	2.19	2.92	2.72
Cotton-Seed Meals				
Available phosphoric acid--	2.34	1.50	2.61	1.51
Ammonia -----	7.06	7.00	7.08	7.01
Potash soluble in water---	1.47	1.00	1.51	1.01
Nitrate of Soda				
Ammonia (equivalent) ---	18.59	18.02	18.47	18.03
American Potash				
Potash soluble in water---	29.77	29.81	37.26	37.79
Kainits				
Potash soluble in water---	0.00	0.00	13.82	12.95
Muriate of Potash				
Potash soluble in water---	0.00	0.00	46.78	47.21
Manure Salt (Potash)				
Potash soluble in water---	0.00	0.00	20.24	20.46
Acid Phosphates with Potash				
Available phosphoric acid--	10.36	9.67	9.82	9.65
Potash soluble in water---	3.58	3.67	3.10	3.28

A striking feature of this table is the re-appearance of foreign potash on the market. Thees averages represent sixty-five kainits, four muriates, and six manure salts. During the seasons 1915-1916 to 1918-1919, inclusive, no foreign potash salts were received for analysis.

The averages of American potash represent forty-nine samples for 1918-1919, and fourteen samples for 1919-1920. About half of these fourteen samples were brought over from last season. So it is evident that the presence of borax in certain American potashes, which was believed to have injured crops last year, has made the consumer fight shy of all American potash, at least in this State.

There is also included in the above table for the first time in several years the averages of the acid phosphates with potash. These averages represent six samples for 1918-1919 and fourteen samples for 1919-1920.

The following table shows the averages of the analyses of fertilizers from the time the Board of Trustees of The Clemson Agricultural College of South Carolina took charge of the fertilizer inspection down to the present time, or from 1891 to 1920, inclusive.

YEARLY AVERAGE OF ANALYSES FROM 1891 TO 1920, INCLUSIVE.

Season	Acid Phosphates		Acid Phosphate with Potash			Complete Fertilizer			Cotton Seed Meals				Kainita		Muriate Potash		Nitrate of Soda		Acid Phosphate with Ammonia			
	Number of Samples	Available Phosphoric Acid—Per Cent.	Number of Samples	Available Phosphoric Acid—Per Cent.	Potash Soluble in Water—Per Cent.	Number of Samples	Available Phosphoric Acid—Per Cent.	Ammonia—Per Cent.	Potash Soluble in Water—Per Cent.	Number of Samples	Available Phosphoric Acid—Per Cent.	Ammonia—Per Cent.	Potash Soluble in Water—Per Cent.	Number of Samples	Potash Soluble in Water—Per Cent.	Number of Samples	Potash Soluble in Water—Per Cent.	Number of Samples	Ammonia—Per Cent.	Number of Samples	Available Phosphoric Acid—Per Cent.	Ammonia—Per Cent.
1890-1	49	13.02	19	11.84	1.65	173	9.34	2.68	1.96	30	.....	8.37	.....	21	12.75	1	51.96	1	19.22			
1891-2	29	12.92	16	11.50	1.49	112	8.83	2.80	1.95	25	.....	8.21	.....	18	12.51	.....	.....	1	18.63			
1892-3	48	12.32	26	11.63	1.22	150	9.00	2.91	1.65	20	2.62	8.40	1.32	20	12.05	.....	.....	.....	.....
1893-4	46	13.24	22	12.01	1.51	132	9.27	2.53	1.79	22	2.45	8.64	1.69	17	12.37	.....	.....	.....	.....
1894-5	46	13.55	15	12.09	1.66	87	9.42	2.55	1.77	33	2.58	8.19	1.66	19	12.30	.....	.....	.....	.....
1895-6	42	13.43	26	11.99	1.39	115	9.31	2.64	1.86	34	2.57	8.45	1.61	16	12.45	.....	.....	.....	.....
1896-7	59	13.61	34	12.06	1.61	117	9.55	2.70	1.91	40	2.53	8.69	1.64	22	12.44	.....	.....	.....	.....
1897-8	63	13.67	50	11.54	2.06	141	9.15	2.70	1.93	39	2.37	8.39	1.58	20	12.68	.....	.....	1	19.23			
1898-9	73	13.74	68	11.77	1.99	134	9.32	2.73	2.21	40	2.76	8.25	1.75	14	12.78	2	51.93	2	18.96			
1899-1900	73	13.58	63	11.58	2.00	124	9.50	2.73	2.13	52	2.27	8.73	1.63	8	12.73	4	50.95	3	19.01			
1900-1	56	14.00	55	11.49	2.65	139	9.40	2.87	2.47	60	2.38	8.55	1.54	12	12.61	2	48.92	3	18.96			
1901-2	45	14.11	51	11.09	2.55	141	9.39	2.84	2.34	49	2.57	7.93	1.63	16	12.85	4	50.54	3	19.03			
1902-3	51	13.74	55	10.94	2.65	139	9.02	2.69	2.42	60	2.27	8.08	1.48	15	12.92	2	50.25	2	19.15			
1903-4	59	14.32	75	11.12	2.81	180	9.12	2.99	2.90	57	2.28	7.92	1.54	11	12.94	7	49.79	6	18.87			
1904-5	81	14.81	82	10.70	3.07	250	9.19	3.12	2.90	62	2.41	7.42	1.54	26	12.54	6	50.49	7	18.73			
1905-6	87	14.95	94	10.97	3.30	375	9.34	3.26	2.98	71	2.42	7.51	1.57	29	12.83	13	50.05	19	18.67			
1906-7	111	14.95	72	10.76	3.21	390	8.91	3.29	3.29	99	2.68	7.32	1.69	30	12.78	13	51.52	20	18.49			
1907-8	91	14.71	64	10.57	3.54	363	9.17	3.01	3.01	114	2.37	7.40	1.61	39	12.91	15	51.04	17	18.33			
1908-9	108	15.02	80	10.55	2.93	396	9.16	3.03	3.08	115	2.39	7.27	1.71	45	13.03	14	50.46	21	18.26			
1909-10	159	15.18	74	10.16	3.54	599	8.89	3.31	3.34	133	2.37	7.20	1.67	73	13.10	26	50.96	40	18.10			
1910-11	187	15.39	101	10.62	3.48	942	9.00	3.34	3.33	177	2.46	7.26	1.59	63	13.00	24	50.18	50	18.46			
1911-12	180	15.42	116	10.68	3.25	960	9.07	3.46	3.22	153	2.17	7.54	1.58	69	14.04	47	50.42	76	18.55			
1912-13	176	15.83	85	10.43	3.63	1199	8.86	3.54	3.57	171	2.56	7.37	1.65	69	13.72	29	51.51	48	18.64			
1913-14	229	16.10	91	10.63	3.93	1523	8.79	3.44	3.75	188	2.36	7.28	1.63	146	14.12	65	50.41	92	18.25			
1914-15	150	16.30	69	10.75	2.69	773	8.91	2.96	2.70	90	2.46	7.21	1.56	5	13.51	2	50.17	71	18.56	18	12.09	3.75
1915-16	200	16.40	7	10.72	2.12	385	8.73	3.42	1.49	245	2.31	7.05	1.51	3	13.44	0	.....	33	18.53	555	8.85	3.71
1916-17	118	16.62	1	10.90	3.91	501	8.70	3.31	2.13	202	2.44	6.88	1.54	0	0.00	0	0.00	45	18.69	640	8.76	3.67
1917-18	106	16.71	3	9.99	2.82	521	8.54	3.09	2.25	266	2.33	7.06	1.57	0	0.00	0	0.00	21	18.50	470	8.66	3.59
1918-19	69	16.86	6	10.36	3.58	544	8.82	2.95	2.23	199	2.34	7.06	1.47	0	0.00	0	0.00	11	18.59	357	8.84	3.39
1919-20	81	16.47	14	9.82	3.10	992	8.64	3.27	2.92	94	2.61	7.08	1.51	65	13.82	4	46.78	40	18.47	284	8.52	3.27

In the following table the number of acid phosphates, acid phosphates with potash, complete fertilizers, cotton seed meals, and special mixtures (acid phosphates with ammonia) of each grade, according to guarantee, is placed side by side with the number found on analysis to belong to that grade, fertilizers having commercial values equal to those of schedule grades being placed in these grades:

	High		Standard		Low	
	Claimed	Found	Claimed	Found	Claimed	Found
Acid phosphates (81)	80	81	0	0	1	0
Acid phosphates with potash (14)	10	11	4	1	0	2
Complete fertilizers (992)	739	742	164	218	89	32
Cotton seed meals (94)	2	3	92	80	0	11
Special mixtures (284)	114	116	144	131	36	37
Total (1465)	945	953	404	430	116	82

These results are due to the following changes in grade ascertained by analysis:

	Low to High	Low to Standard	Standard to High	High to Standard	High to Low	Standard to Low	No Change
Acid phosphates (81)	1	0	0	0	0	0	80
Acid phosphates with potash (14)	0	0	2	1	0	2	9
Complete fertilizers (992)	4	67	18	17	1	15	870
Cotton seed meals (94)	0	0	1	0	0	11	82
Special mixtures (284)	0	6	11	9	1	14	243
Total (1465)	5	73	32	27	2	42	1284

This table shows that out of 1465 samples, 1284 were of the grade claimed for them, 110 were of a higher grade, and 71 of a lower grade than that claimed for them. Last season out of 1175 samples 988 were of the grade claimed, 130 were of a higher grade than claimed, and 57 of a lower grade than claimed. Expressed in percentages the figures for the season just before the outbreak of the Great War, and for the six seasons since that war began are as follows:

Season	Of Grade Claimed	Higher than Grade Claimed	Lower than Grade Claimed
1913-1914 -- -- -- --	88.42	9.99	1.57
1914-1915 -- -- -- --	85.95	6.37	7.67
1915-1916 -- -- -- --	82.04	13.50	4.45
1916-1917 -- -- -- --	88.57	8.62	2.80
1917-1918 -- -- -- --	87.75	9.66	2.51
1918-1919 -- -- -- --	84.08	11.06	4.85
1919-1920 -- -- -- --	87.65	7.51	4.85

This table shows that in the year previous to the Great War about 98 per cent. of the samples were of the grade claimed or higher, that in 1914-1915 there were about 92 per cent., in 1915-1916 about 95.50 per cent., in 1916-1917 and in 1917-1918 about 97 per cent., in 1918-1919 about 95 per cent., and this season about 95.2 per cent.

In order to compare the results of this season's grades with those of last season, the following summary is given:

	1918-1919			1919-1920		
	Claimed	Above	Below	Claimed	Above	Below
Acid phosphates	69	0	0	80	1	0
Acid phosphates with potash	6	0	0	9	2	3
Complete fertilizers	476	35	33	870	89	33
Cotton seed meals	145	33	21	82	1	11
Special mixtures	292	62	3	243	17	24

Attention has been called in my last four annual reports to the number of Low Grade cotton seed meals on the market. It was noted that the number of such meals had decreased from 16.73 per cent. in 1915-1916 to 9.90 per cent. in 1916-1917, and in 1917-1918 fell to 4.31 per cent., but last season, 1918-1919, the percentage of Low Grade cotton seed meals rose to 10.5 per cent. This season the percentage of Low Grade meals is 11.7 per cent. Although we received for analysis less than half as many samples of cotton seed meal, owing to the high price no doubt, the ratio of Low Grade meals is a little higher than last season. On the whole, however, the meals seem to have been of better quality this season than last.

Nitrogen:—Deficiencies, Sources and Availability.

In connection with the subject of deficiencies in nitrogen, or equivalent ammonia, the following table is interesting. It is to be noted that none of the deficient samples listed is deficient in commercial value:

Year	Number of Samples	Deficient in One or more Ingredients	Deficient in Nitrogen only	Deficient in Nitrogen Per Cent.
1905	522	165	61	36.96
1906	655	201	87	43.28
1907	743	153	81	52.94
1908	713	161	77	47.82
1909	805	197	74	37.56
1910	1188	235	79	33.61
1911	1605	393	107	27.22
1912	1689	380	71	18.68
1913	1922	389	190	48.84
1914	2537	534	257	48.13
1915	1227	333	145	43.54
1916	1598	378	130	34.39
1917	1594	477	224	46.96
1918	1474	438	189	43.15
1919	1301	362	160	44.19
1920	1668	519	123	23.70

A decided improvement in the quality of ammoniated goods is shown this season, there being fewer samples deficient in ammonia only and not deficient in commercial value than has been the case since 1912, in which year the lowest recorded deficiency was found, 18.68 per cent., the only other year approaching this year's figures being 1911, when the deficiency was 27.22 per cent.

That organic ammoniates were scarce last season is shown by the large number of samples high in water-soluble nitrogen, or equivalent ammonia. While the number of samples of fish would indicate that a much larger quantity of this material was on the market than usual, certainly other organic ammoniates were not to be had in large amounts as fertilizer, chiefly, perhaps, because of the high price occasioned by their demand as feeds.

Of the 1252 samples of ammoniated goods examined for water-soluble nitrogen, the percentage of water-soluble is shown in the following table:

Per Cent. of Water-soluble Nitrogen	Number of Samples
Less than 10	None
10 to 20	3
20 to 30	10
30 to 40	10
40 to 50	29
50 to 60	98
60 to 70	275
70 to 80	448
80 to 90	264
90 to 100	115
	<hr/> 1252

This would indicate that nitrate of soda and sulphate of ammonia had been used more freely than usual this season in mixed fertilizers, supplemented no doubt with some of the numerous manufactured tankages, other than animal or fish tankages. Many of these manufactured tankages contain a considerable amount of water-soluble nitrogen.

The nitrogen availability standards have not been changed for the past five seasons, and the same will be effective for the coming season, or due notice will be given should it be thought desirable or found necessary to make any changes. The present standards are as follows:

"1st. The Modified Neutral Permanganate Method of Street is still in force.

"2nd. An unmixed fertilizer material furnishing organic nitrogen must show an availability of 85 per cent. of the total organic nitrogen.

"3rd. The water-insoluble organic nitrogen in mixed fertilizers must show an availability of 75 per cent., by Street's method, if this water-insoluble organic nitrogen amounts to one-third or more of the total nitrogen found on analysis."

As was to be expected from the number of samples containing high water-soluble nitrogen, there were not many samples of ammoniated goods in which the water-insoluble organic nitrogen amounted to as much as one-third of the total nitrogen found on analysis. Out of the 1252 examined, only 267 contained water-insoluble organic nitrogen amounting to one-third or more of the total nitrogen found on analysis. Of these 267 samples, 262 were examined as to the availability of the water-insoluble nitrogen by Street's method, and only two samples were found below the requirements of the Board of Fertilizer Control. They were as follows:

Sam- ple No.	Brand Name of Fertilizer	Name and Address of Manufacturer	Per Cent Availability of Water-In- soluble Or- ganic Nitrogen
689	McCabe's Special Mixture	McCabe Fert. Co., Charleston, S. C.	70
715	Mutual 904	Mutual Fert. Co., Savannah, Ga.	53

Sources of nitrogen claimed in number 689 were: Blood, tankage and fish; in 715, Fish, blood, tankage, cottonseed meal and ammonium phosphate.

The results of the nitrogen availability work this season are certainly very satisfactory, and show that the manufacturers are con-

tinuing to use in the large majority of cases organic ammoniates of good grade. With the exception of the two samples given above, there were only three others in which the availability of the water-insoluble organic nitrogen fell below 80 per cent., and these three showed an availability of 76, 77, and 78 per cent., respectively, being over the 75 per cent. requirement.

Farmers' Samples of Fertilizers:

In addition to the official fertilizer samples collected by inspectors, there have been analysed this season 134 samples for purchasers, as provided for in Section 1540 of the Fertilizer Law.

Ores, Minerals, etc.:

Twenty-five specimens were received and examined as compared with thirty-five last season. They consisted as usual very largely of iron pyrites, micas, and clays.

Waters:

Of the forty-five samples of water listed, nine were sanitary analyses of the Barracks spring, nine of the stand-pipe water, regularly monthly examinations; nineteen were sanitary and six complete mineral analyses of waters sent in by citizens of the State; one partial analysis of a sample sent in by a citizen; one sample from Professor S. B. Earle's well on the campus.

Limestones, Marls, and Lime:

Six samples were analysed of materials of this nature this season as compared with two last season.

Ashes:

The fact that we received for analysis only one sample of ashes (wood) this season as compared with six last season, would indicate the waning of interest in possible potash sources with the advent of foreign potash once more.

Assays for Gold and Silver:

Seven samples were assayed for gold and silver this season as compared with four last season, indicating renewed interest in mining possibilities, though it seems to have been definitely established by geological surveys of the State, that gold and silver do not occur in our State in paying quantities.

Miscellaneous:

The miscellaneous samples include: one sample of a clover analysed at the request of Colonel Alan Johnstone; thirteen samples of fertilizers and fertilizer materials analysed for borax only; one sample of trona potash examined for borax and alum; one each, fertilizer for sources of ammonia, and for chlorine only; one sample of a food compound for fertilizer value; two samples of water for oil; one mineral or rock, analysed at the request of Senator E. D. Smith, the specimen occurring in Pennsylvania; four samples of boiler scale; one each, cotton waste, phospho-landplaster, burnt material from Colonial Apartments, Greenville, S. C., for fertilizer value, an off-color lard for determination of cause of same, soil for fertilizer value; six fertilizer check samples; one each, nitrogen availability of casein and of coca shells; seven samples of fertilizers analysed in co-operation with A. H. Ward, County Agent, Darlington County, all of which were especially examined for borax also;

ten samples for the Association of Official Agricultural Chemists in connection with the worknig out of a method for determining borax.

In addition to and not included in any of the work above set forth, we were called upon to examine twenty-six of the official fertilizer samples, collected by the inspectors, for borax, after the crop injuries in Darlington County, which appeared to be traceable to the use of certain American potash containing borax. Of these twenty-six samples, thirteen were potash salts, all so-called trona potash, which showed from 0.15 to over 15 per cent. of anhydrous borax. Ten of the thirteen samples of trona potash were found to contain from 10 to 16 per cent. of borax, with an average of over 12.50 per cent.; two of the thirteen samples analysed from 5.25 to 6.50 per cent., in round numbers, while one sample showed only 0.15 per cent. of borax. Eleven complete fertilizers gave on analysis only from 0.02 to 0.47 per cent. of anhydrous borax, while two samples of mixed goods guaranteed to contain available phosphoric acid and ammonia only gave from 0.00 to 0.04 per cent of borax.

Distribution of the Work:

The fertilizer analyses were made by Messrs. Robertson, Foy, and Freeman. Mr. Inman examined several samples of fertilizers for sources of ammonia, upon request of purchasers.

All of the miscellaneous work was done by Mr. Freeman, excepting the borax determinations, which were made by Mr. Foy, or by Dr. Lipscomb and his assistant, Mr. Watkins.

All of the determinations of nitrogen availability, and of water-soluble nitrogen, indeed all of the work involving nitrogen determinations, was done by Mr. Robertson.

It gives me pleasure to be able to say that all of the work has been faithfully and efficiently performed, and apparent harmony and hearty co-operation has prevailed throughout the year.

Respectfully submitted,

R. N. BRACKETT,

Director and Chief Chemist.

Report of The State Entomologist

Dr. W. M. Riggs, President,
Clemson Agricultural College,
Clemson College, S. C.

Dear Sir:

We submit herewith the annual report of the work of the South Carolina State Crop Pest Commission for the period beginning July 1, 1919, and ending December 1, 1920. As the Crop Pest and Disease work is prosecuted with funds made by direct legislative appropriations, it is the intention to have the period covered by this report brought into conformity with the State's fiscal year which ends on December 31, 1920.

The work was prosecuted along the same lines as heretofore, but the responsibilities in the various sections of this service considerably increased and decidedly greater efforts were required to meet the increasing demands made upon this Commission. The general policy of the service has not been altered and no change is contemplated owing to the satisfactory progress made during the past year.

Several serious pests of foreign introduction have assumed a very threatening aspect, taxing the vigilance of the quarantine officers.

NURSERY INSPECTION

The intra-state nursery inspection work has not increased owing to the small number of nurseries in this State. The great bulk of nursery stock shipments are interstate and the principal efforts in nursery quarantine work are directed to stock coming into the state. Efforts are continually in progress to secure greater protection against the introduction of pests from points outside of this state, and owing to the great predominance of interstate shipments this phase of the work is especially exacting. There is an embarrassing lack of uniformity in the forms of certificates used by the various states, and this fact is receiving increased attention by quarantine officers due to increasing activities in the nursery trade. This problem of an efficient and satisfactory standardization of nursery inspection laws is receiving serious attention by the Association of Cotton States Entomologists, the nurserymen's associations and leading nurserymen. The adoption of uniform regulations and

THE COTTON BOLL WEEVIL

The dispersion movement of the cotton boll weevil during the fall of 1919 was one of the largest during its history, as can be seen by examining the accompanying map showing the dispersion of the weevil since its entrance into South Carolina at Daufuskee Island in the fall of 1917. The migration was an entirely natural one due to the erratic sequence of wet and dry weather, which caused a rapid falling off of square formation. The square is the weevil's favorite food, and any abrupt or serious reduction in the number of squares will cause the weevil to migrate for food. Lack of food, however, is not the only cause for migration. Dispersion takes place every fall, but the amount of new territory covered varies somewhat from year to year.

The winter of 1919-20 was not severe from an insect standpoint, and no death rate in hibernation above the normal could have been expected. The line of distribution, therefore, held during the growing season of 1920 so that the expected fall migration practically covered the remainder of the cotton belt of the state.

Assuming that the boll weevil will respond to climatic conditions in South Carolina in a similar manner as it has done over the Gulf States through past years, we have a basis from which we can calculate approximately what development may be expected in 1921. It may be set down as a general rule that the weevil rarely does serious injury during the season following the fall when it first appears in any given locality. Some damage may be expected the second year after its first appearance while serious damage may be expected during the third year provided that the pest does not receive a setback in the meantime. Probable damage and probable dispersion are two elements of the greatest importance in determining policies in the operation of the quarantine in the most logical and effective manner.

The boll weevil crossed the Rio Grande River twenty-seven years ago and after it became thoroughly established in Texas it started on an eastward course, migrating parallel to the Gulf Coast line; and as this course was pursued during a period of fifteen years, many people became accustomed to the habit of interpreting damage on the basis of latitude. From 1904 to 1917 the boll weevil damage and the parallels of latitude travelled together until finally they reached the Savannah River. But owing to the change of the direction of the coast line, the isotherms, or lines of equal temperature, also changed their course, thus creating new conditions in the Carolinas for the weevil to work under. Furthermore, the weevil had reached the Sea Island cotton belt, giving the Sea Island cotton the first opportunity to exhibit its behavior under weevil attacks.

The climatic conditions in South Carolina are different from the average conditions under which the weevil has worked heretofore. The rainfall of the state during the growing season, June, July and August is comparatively heavy, making conditions favorable to the development of the weevil. A feature of the boll weevil work which charged this service with great responsibility was the proper guidance in the preparation for poisoning and the actual poisoning work in 1920. It was necessary for the situation to be studied from the following angles:

First, the possible damage of the insect in 1920 in the different sections of the state.

Second, the correct amount of proper calcium arsenate which would possibly be available in the market.

Third, the number of properly constructed machines possibly available in the market.

Fourth, the labor conditions on South Carolina farms and the probable cotton market.

After a most careful study of the work on boll weevil poisoning, it became apparent that while this method was giving promise of success as a factor in cotton boll weevil control, it could not be overlooked that at the present stage of development poisoning here constituted most complicated and serious operations. The strongest and most conservative advocate of the poisoning had learned that the operation must be thoroughly completed in every step, and if this is not done then entire failure may be expected. The important fact was emphasized that an over-allotment of acreage per machine be absolutely avoided as this constituted one of the easiest ways in which to fail. These studies are of the greatest importance to the farmers, crushers, and others interested in the cotton industry in planning developments for several years in advance. It was, therefore, of the greatest importance especially on account of the great responsiveness of our farmers that the development of the poisoning work in this state be thoroughly understood and prosecuted in the most conservative manner. The position taken by this Commission was beset with many difficulties and led to many serious controversies between officials and manufacturers, merchants and the farmers.

Our people were warned early in the season in regard to the probable shortage of satisfactory dusting machinery. It was pointed out that there would not be an over-supply of traction machines but that there were available a large number of hand dusters for which excessive allotments in acreage were being made. It was emphasized that poisoning in general would probably have little influence on the boll weevil situation in 1920; first, because of the probable inability to secure the necessary number of dusting ma-

chines; secondly, because of the scarcity of labor; and, thirdly because of the limited acreage on which cotton dusting would yet be profitable in this state. It was necessary to emphasize that under favorable weevil conditions serious damage might occur in Beaufort, Jasper, Hampton, Charleston, Colleton and Barnwell Counties. In case of a wet season sharp damage might be expected also in Bamberg, Calhoun, Orangeburg and Dorchester Counties as well as in other coastal counties; the damage throughout the central portion of the state under any conditions would be light, while weevil injury could be safely ignored for the balance of the state in 1920.

THE PINK BOLLWORM

This pest has been mentioned in previous annual reports and in the last report it was explained that shipments of baled cotton from the Laguna district in Mexico had reached points in South Carolina in 1916. Owing to the crude methods of Mexican ginning, the danger of transporting the pink bollworm in this manner is especially great. The points in this state having received such shipments were systematically inspected throughout the seasons of 1918 and 1919.

New developments took place during the past season when the pink bollworm was discovered by the Federal Horticultural Board in three parishes of southern Louisiana. Heretofore infestation had been confined to limited areas in Texas and Louisiana, but the Louisiana infestation looked especially serious because of the fact that at some points it was very severe and apparently of comparatively long standing. Before the Louisiana infestation was discovered, a number of cars of cotton seed had been transported to various and sundry points in Louisiana and Texas, making it impossible for the time being to define with exactness the areas possibly infested by this pest. This situation, combined with the poisoning problem for the boll weevil, led to a meeting of the Cotton States Entomologists at Vicksburg, Mississippi, and Tallulah, Louisiana, on March 1, 2, and 3, 1920, for the purpose of exchanging views and of gaining a general understanding as to the best course to pursue in 1920. At this meeting there were representatives from practically all of the cotton states, consisting of Federal and State Entomologists and Pathologists, as well as manufacturers and representative planters. After a full report by these various representatives, the way for procedure became quite clear and definite plans of action were formulated for procedure in the work of cotton boll weevil poisoning and also for the handling of the pink bollworm situation.

The pink bollworm situation was aggravated in this state by the further discovery of the arrival of shipments of cotton material at various points in this state from August, 1917, to June, 1920. A

roster of these points is maintained in the office of this Commission, and systematic inspections are being continued in order that the pest may be discovered should it have been shipped in one of these consignments. It is believed that the danger from the shipments previous to 1917 is past, due probably in no small part to the severe winter of 1917-18; and investigations now are directed principally to the points that received later shipments. The discovery of this pest in its incipency would give the Commission the best opportunity for eradication work, as has been demonstrated in insect control work repeatedly in the past.

The pink bollworm is a pest in Egypt, Brazil and Mexico. While the Mexican situation cannot be taken as an index of what may be expected due to the unsettled conditions in that country, we do have records from Egypt and Brazil that admit of sufficient interpretation as to what may be expected should this pest reach full strength in the cotton belt of this country. With the appearance of this pest in this state, adding from thirty to fifty percent loss to that already sustained by the boll weevil after that pest had developed full strength, anyone may conjecture what the effect might be on the cotton industry of this state.

The situation was found to be especially serious, owing to the apparent inability to get the cooperation of the states of Texas and Louisiana in the prevention and the eradication of this pest. It was decided by the quarantine officials at the Vicksburg meeting that it behooved all of the Southern states besides Texas and Louisiana to take such action as might best prevent the introduction of this pest into their respective states. It was, therefore, agreed that a quarantine be established by all of the cotton states against the states of Texas and Louisiana and that this quarantine to be uniform among the various states. It was further agreed that this quarantine should be sufficiently drastic to serve the purpose for which it was intended, and that such readaptation would be made of the regulations as might be warranted after Texas and Louisiana had established the necessary quarantine and eradication services with assurances of maintenance. The pink bollworm regulations became effective in the various states approximately April first, 1920. The reasons for these regulations were explained in the press, and in this state this Commission received the usual cooperation.

The disturbing element in the execution of this quarantine was caused by the failure on the part of Georgia to adopt any quarantine regulations whatsoever. This enabled shipments from Texas and Louisiana to reach Georgia, from which points, therefore, material could be re-shipped into this state. But the necessity of such

quarantine was so apparent to the public that it became necessary for Georgia to adopt adequate quarantine regulations.

EUROPEAN CORN BORER

The European Corn Borer since our last annual report has spread over more territory and at this writing occurs in Eastern Massachusetts, Southern New Hampshire, Eastern New York and Western Pennsylvania. Since our last report quarantine regulations have been adopted by this Commission and which are in force and effect at this time. A copy of these quarantine regulations are appended to this report.

THE MEXICAN BEAN BEETLE (*Epilachna corrupta*)

In August, 1919, the presence of the Mexican bean beetle was reported from Alabama. It had spread over about a dozen counties of the north central portion of the state. According to Dr. Hinds, the State Entomologist of Alabama, it would appear that the pest was introduced since July, 1918 or 1919, in the vicinity of Birmingham and Blocton.

This destructive pest is not new to American entomologists. It has been known for years as an inhabitant of some of the high semi-arid regions of the west. It appears to have reached the United States from Mexico, but heretofore had not threatened its establishment in the humid sections of the east. It is a very heavy feeder on members of the legume family, preferring lima and snap beans.

Considering the very great importance of the legume family in southern agriculture, including beans, soybeans and cowpeas for both food and soil-building, it becomes apparent that this pest may become a greater enemy to this country than the Mexican boll weevil. The appearance of this pest in the Gulf states adds another danger to those already threatening our borders and demands increased efforts on the part of the State Crop Pest Commission in co-operation with the quarantine organizations of other states that hold this pest in check.

The appearance of these foreign introduced pests in American agriculture need not be taken as a surprise considering the greatly increased activities in interstate and international commerce in recent years and the fact that we had had no adequate Federal quarantine service until 1912. These problems in American agriculture are becoming more serious from year to year, and it requires the best organization of which the state is capable to cope with them.

THE JAPANESE BEETLE (*Pappilio japonica*)

The Japanese beetle at present occurs in several counties in central New Jersey and also in one county in eastern Pennsylvania. The quarantine regulations of the Federal Horticultural Board in

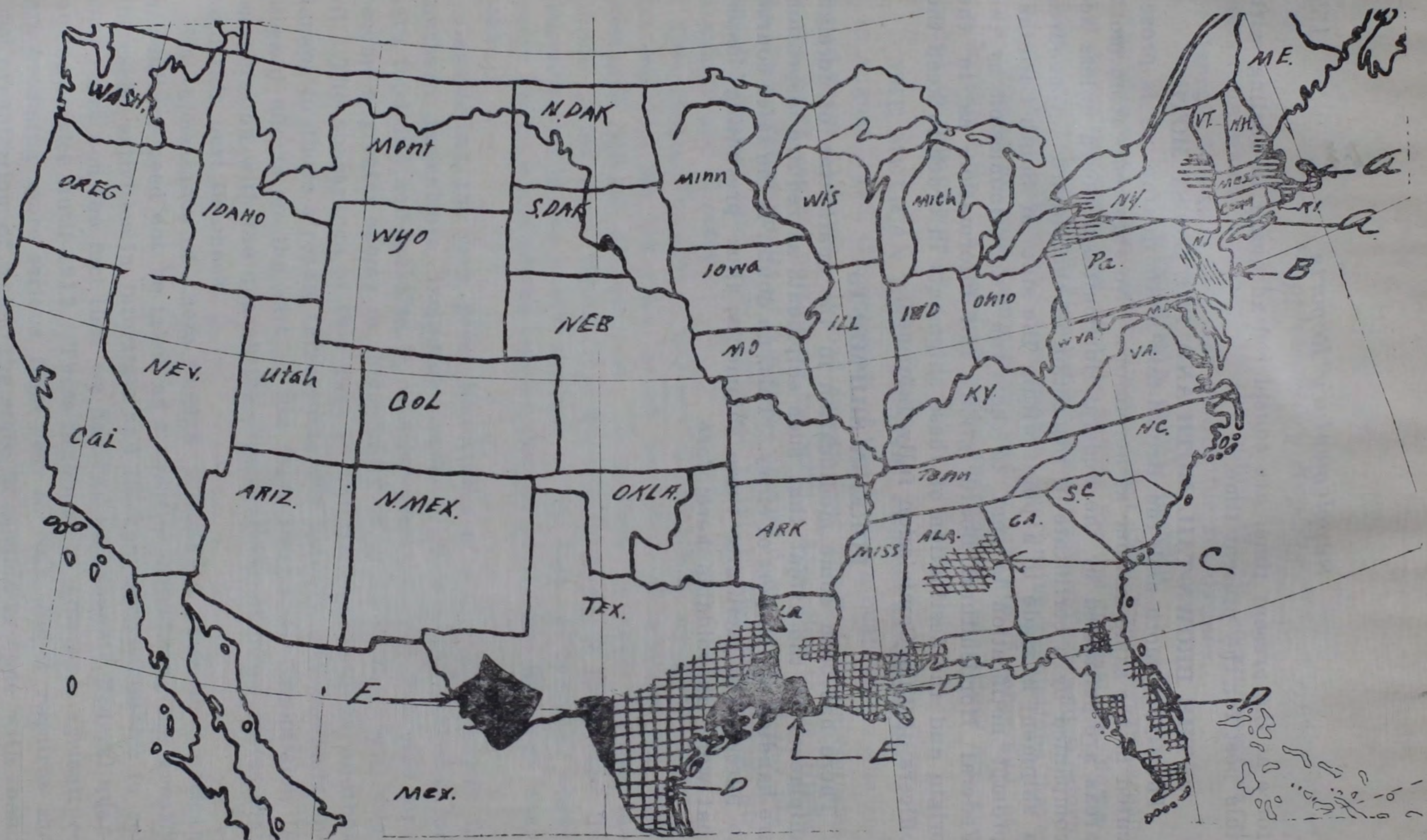
force at the present time, are considered adequate in dealing with this pest for the present time.

THE BROWN-TAIL MOTH AND THE GYPSY MOTH

The Gypsy moth and the Brown-tail moth quarantine is prosecuted in the same manner as heretofore. No shipments from moth areas are permitted by the Federal Horticultural Board unless accompanied by a certificate of inspection of that Board. Whenever a shipment is made to a point within the state of South Carolina, prompt notification is sent to the Crop Pest Commission by the Federal Horticultural Board giving full information as to the origin and the destination of these shipments in order to keep the officers of this Commission fully informed.

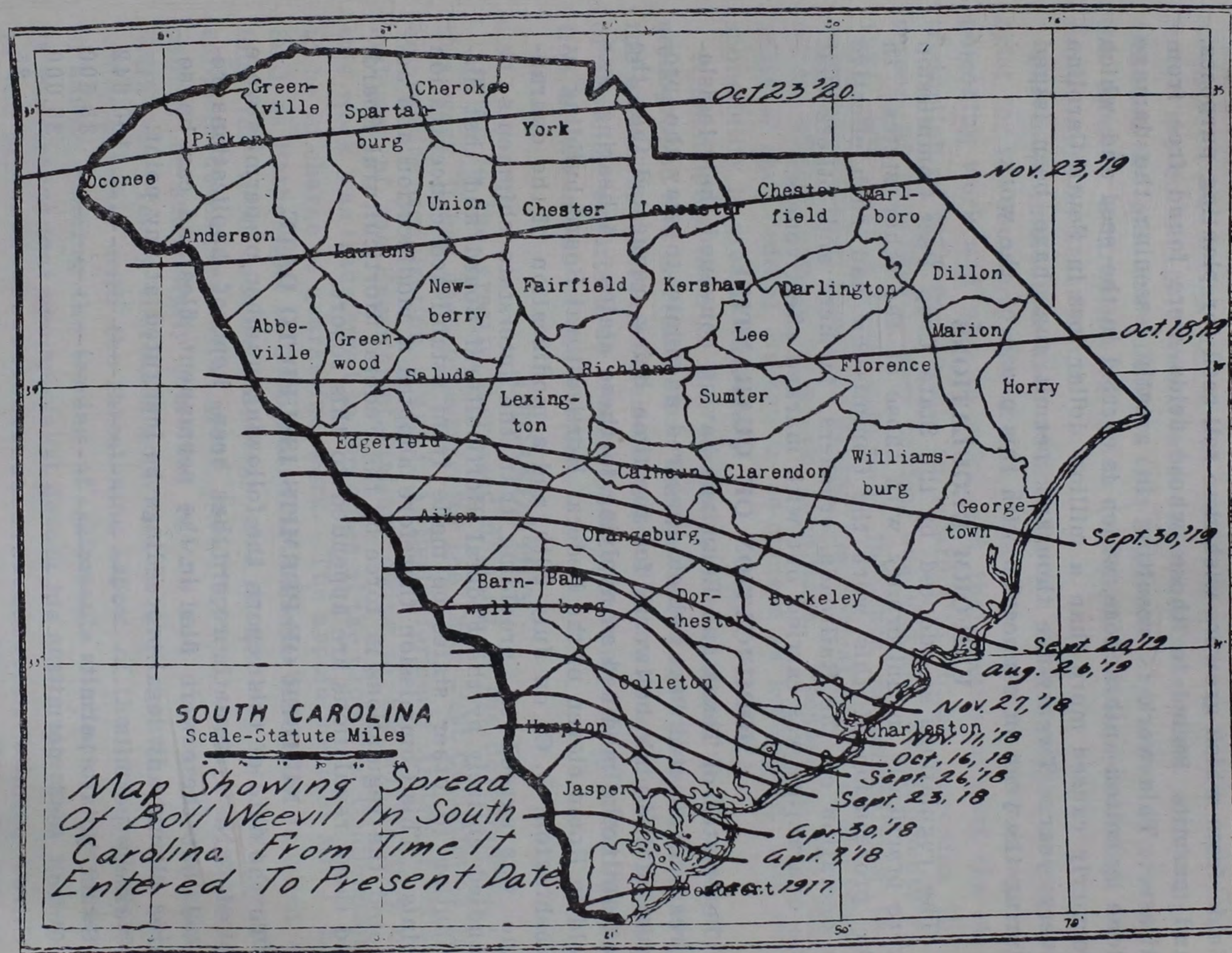
FOREIGN SHIPMENTS

There has been some modification in the quarantine of foreign shipments to the extent that such shipments as require inspection are handled at the port of entry. This, no doubt, is the safer course to pursue and facilitates these shipments, thus preventing losses that were unavoidable heretofore.



The shaded areas on the above map indicate areas of infestation by the following injurious insects:

- A. European corn borer.
- B. Japanese beetle.
- C. Mexican bean beetle.
- D. Sweet potato weevil.
- E. Pink boll worm.



COTTON DISEASES

The regulations relative to the sale and shipment of cotton seed for planting purposes continue to safeguard the farmers' interest by preventing the sale or distribution of seed infected with cotton anthracnose, and other dangerous and infectious diseases of this important crop. Inspections have been made during the year of fields from which growers wished to sell seed for planting purposes, and permits issued to those whose fields were found free from disease. This work is resulting in greatly lessening the damage done by cotton anthracnose, which is carried in the seed and which formerly caused more than a million dollar loss in South Carolina every year. Twenty-five thousand permit tags have been issued during the year in connection with this phase of the work.

UNIFORM REGULATIONS

The regulations as adopted by the State Crop Pest Commission were practically in uniformity with those of the other states. In the prosecution of this work the Commission had such effective co-operation of the Railroads, crushers, farmers and others that the quarantine was carried out with marked effectiveness.

MODIFICATION OF QUARANTINE

The states of Texas and Louisiana having convened their legislatures and enacted laws which appeared adequate to stay the progress of the pink bollworm for the time being, requested that the quarantine be modified as applying to these states. A hearing was held in Room eleven of the Federal Horticultural Board building at Washington, D. C., on July 20th, and a modification of the quarantine was agreed to, providing that the interstate shipments be handled entirely by the Federal Horticultural Board and that distribution to other states be made from established concentration points. This Commission therefore adopted a modification and accepted the regulations in force by the Federal Horticultural Board, and these regulations are appended to this report.

NUMBER OF PERMITS ISSUED TO DATE

To the date of this report, the following number of permits were issued. No systematic record has been kept of applications refused, but these were filed in the permanent files and can be secured should any legal proceedings be instituted at any point.

Nursery permits -----	100,642
Sweet potato permits -----	35,500
Cotton seed permits -----	25,000
Citrus permits -----	25
Special permits -----	50
Permits on account of pink bollworm -----	208

MISCELLANEOUS INSECTS

This year was marked by an unusual scarcity of insect outbreaks. The cotton leaf worm, *Alabama argillaceae*, broke out in spots in some of the extreme coastal counties. The red spider occurred only sporadically. The cowpea curculio, *Chalcodermus aeneus*, so common every spring along the fall line of the state, engaged in its usual role; but owing to its size and shape, many farmers mistook it for the cotton boll weevil and serious efforts were required to disabuse the planters' minds of this impression in order to prevent the panicky destruction of cotton which had been scheduled for supersedure by other crops.

The most immediate need of the service is a qualified entomologist for the southern part of the state to engage in the boll weevil poisoning work and also to safeguard that section against the introduction of pink bollworm. In relation to cotton poisoning the season of 1920 was a very critical one and the developments in 1921 will have a most important influence in determining the progress of weevil poisoning during the critical period of the adaptation of our farmers to weevil conditions. Because of the inability of the Federal Bureau to co-operate as heretofore, this responsibility is greatly increased.

A developing need in this service is the availability of adequate stenographic and clerical help. The increased activities placed upon the specialists increases clerical responsibility, whereas all the time of Division experts is so necessary in a prompt and efficient execution of the needs of the service.

ORGANIZATION

Owing to the greatly increased demand in the development of this work, it has been necessary for the Crop Pest Commission to enlarge its organization. Mr. J. A. Berly, formerly Assistant Entomologist of the Experiment Station, owing to his adaptability to this work was transferred to the office of the Crop Pest Commission to be in charge of quarantine work. The appointment of Mr. J. L. Seal as Pathologist in Crop Pest and Disease Work has supplied a long felt need because pathology and entomology are two broad subjects developing with great rapidity, and these two subjects cannot be successfully combined in one and the same specialist. With the greatly increased activities in boll weevil work in this state, together with the threatening aspect of the pink boll worm situation, making the tracing of shipments continually necessary, it is essential that one specialist devote his entire attention to work in the field.

The organization of the South Carolina State Crop Pest Commission is as follows:

Hon. J. E. Wannamaker, Chairman, St. Matthews.

Hon. A. F. Lever, Peak.

Hon. Richard I. Manning, Columbia.

Hon. B. H. Rawl, Lexington.

Staff

Pathological Section.

H. W. Barre, State Pathologist, Clemson College, S. C.

C. A. Ludwig,* Asst. Plant Pathologist, Clemson College.

J. L. Seal,† Assistant Plant Pathologist, Clemson College.

Entomological Section.

A. F. Conradi, State Entomologist, Clemson College.

J. A. Berly, Assistant Entomologist, Clemson College.

H. S. McConnell,* Assistant Entomologist, Clemson College.

C. B. Nickels,‡ Assistant Entomologist, Clemson College.

Owing to the tense period through which we passed and the difficulty of securing efficient help at conservative salaries we were not able to complete the organization so as to prosecute all phases of the work as planned. It is hoped that this difficulty can be overcome during the next year due to the readjustment now in progress. For this reason one position was not filled until August 1, at which time Mr. C. B. Nickels was appointed for the field work on the boll weevil. The vacancy created by the resignation of Mr. J. L. Seal on July 1, 1920, we were not able to fill.

FINANCIAL REPORT

We submit the following report of the finances of the South Carolina State Crop Pest Commission. This report is submitted in two parts, the first covering the period from July 1, 1919, to April 1, 1920, at which time the appropriations made by the General Assembly for carrying on this work, became available; the second part covers the period beginning April 1, 1920, and ending December 31, 1920.

Part 1—July 1, 1919 to April 1, 1920.

Resources

College Funds -----	\$ 5,527.50
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Expenditures

Personal Services, Salaries -----	\$ 2,187.50	
Wages -----	560.00	
Supplies -----	456.00	
Transportation, Travel -----	360.99	
Equipment -----	62.89	
Equipment -----	62.89	3,626.50
	<hr/>	<hr/>
Balance -----		\$ 1,901.00

* On part time.

† Resigned, July 1, 1920.

‡ Headquarters on James Island, season of 1920.

Part 2—April 1, 1920 to December 1, 1920.

Due to the necessity of submitting this report somewhat prior to the closing of the fiscal year the items are given for expenditures already incurred, and the estimated expenses (including outstanding bills), necessary to complete the work of the fiscal year.

Resources		
Legislative Appropriations	-----	\$10,000.00
Expenditures		
Personal Services, Salaries paid	-----	\$ 5,959.00
Estimated to Dec. 31st.	-----	\$ 6,310.00
Wages paid	-----	128.35
Estimated to Dec. 31st	-----	160.00
Supplies, to date	-----	678.91
Estimated to Dec. 31st	-----	800.00
Transportation, Travel	-----	680.00
Estimated to Dec. 31st	-----	950.00
Equipment, to date	-----	147.28
Estimated to Dec. 31st	-----	190.00
		<hr/>
		\$ 8,410.00
Unexpended balance, est. for Dec. 31, 1920		1,590.00
		<hr/>
Total	-----	\$10,000.00

CONCLUSION

The past year has been the best in the history of insect and disease quarantine in South Carolina and the prospects are encouraging. This quarantine work is becoming more and more educational in its nature. The success of this policy has been in many instances most conclusively demonstrated. The inspection and quarantine service is more and more being regarded as a partnership between the Crop Pest Commission and our people—all working in common for the best interests of our state. Among numerous examples of patriotic loyalty may be mentioned the co-operation given by the Cotton Seed Crushers. The rapid weevil dispersion of the fall of 1919 was unexpected and it severely upset plans and contracts. The Crop Pest Commission officers acted merely in an advisory capacity. They traced the weevil line and interpreted conditions, and our people acted with a sense of patriotism which, it seems to us, typified democracy in its finest form. Financial losses were numerous, due to a fine conscience on the part of our citizens who would prefer to lose heavily on doubtful shipments by preventing their movement rather than feel that they might be the cause of jeopardizing free territory with ship-

ments possibly infested. The progress in co-operation was a high spot of the year. Organization presents a solid front to the weevil's advance, and while it was not intended to make the lion and the lamb lie down together, while it was not intended that legitimate competition should be eliminated, yet many transactions completed in common council showed the avowed purpose of those fortunately situated to render any reasonable assistance to the less fortunate.

Yours very truly,

H. W. BARRE,
State Pathologist.
Nov. 22, 1920.

A. F. CONRADI,
State Entomologist.

REGULATIONS ADOPTED BY THE CROP PEST COMMISSION

South Carolina State Crop Pest Commission

Clemson College, S. C.

Quarantine on Account of Pink Bollworm

(Effective on and after Aug. 1, 1920.)

Whereas the states of Texas and Louisiana have made provision for effective cooperation with the Federal Horticultural Board of the United States Department of Agriculture in dealing with the Pink Bollworm (*Pectinophora gossypiella* Saunders) the South Carolina State Crop Pest Commission promulgates the following regulations effective on and after August 1, 1920. Regulations 1D and 2D effective on and after April 1, 1920, are hereby withdrawn. Until further notice the regulations effective on and after August 1, 1920 are as follows:

Regulations 1D (a). The infested, quarantined and regulated areas or zones designated by the Secretary of Agriculture in Rules and Regulations Supplemental to Notice of Quarantine No. 46 issued on the 21st day of July, 1920, and also such points or areas which may hereafter be designated as infested, quarantined or regulated areas by the Secretary of Agriculture shall constitute the officially recognized infested, quarantined or regulated areas of the South Carolina State Crop Pest Commission. That the South Carolina State Crop Pest Commission may regard any territory quarantined on suspicion pending action of the Secretary of Agriculture of the United States.

Regulations 2D (a). The movement of cotton, including all parts of the plant, seed cotton, cotton lint, linters, gin waste and all other forms of cotton lint, cotton seed, cotton seed hulls, cotton seed cake and meal, bagging and other containers of the articles enumerated in above said order, and also railway cars, boats, and other vehicles, which have been used in conveying cotton or cotton products grown in infested, quarantined or regulated areas, or which are fouled with such products, hay and other farm products, farm and household goods and farm equipment, into the state of South Carolina from infested, quarantined or regulated areas shall hereby be prohibited: Unless accompanied by a permit of the Federal Horticultural Board; or by a certificate of the Federal Horticultural Board stating that the material or articles have not been infested by the pink bollworm and that there is no evidence for suspecting such infestation.

Regulations 3D (a). On August 1, 1920 and subject to change according to the movements of the pink bollworm the infested, quarantined or regulated areas are as follows:

Infested areas:

Texas: All of the Counties of Orange, Jefferson, Chambers, Galveston and portions of the Counties of Brazoria, Harris, Liberty and Jasper.

Louisiana: Parishes of Cameron, Calcasieu and Jeff Davis.

Regulated areas:

The following districts in Texas and Louisiana are designated as regulated areas:

Texas: All of the counties of Orange, Jefferson, Chambers and Galveston and portions of Brazoria, Fort Bend, Harris, Liberty, Newton and Jasper Counties, included within the line indicated below:

From the mouth of Chocolate Bayou northward along the bayou to the bridge where the Elby-Knappe Road crosses the bayou south of Alvin near the S. T. Angier Survey; thence in a westerly direction to Sandy Point on the International & Great Northern Railway; thence west to the Brazos River to the Gulf; Colorado and Santa Fe Railway bridge west of Arcola; thence in a northeasterly direction to the intersection of the Ford Bend, Brazoria and Harris County lines south of Almeda; thence along Clear Creek to the Santa Fe crossing north of Pearland; thence in a northwesterly direction to Lynchburg; thence northward along the San Jacinto River to the Gulf Coast Railway, thence northwesterly along the Gulf Coast Railway to the Harris-Liberty County line; thence along the Liberty and Harris County line to Luce Bayou on the Ed King Survey; thence along Luce Bayou in a northeasterly direction to the north east corner of the Thomas Garrett Survey; thence in a nor-

therly direction along the east side of the Hugh Means Survey and the J. R. Fault Survey to the Southwest corner of the Manuel de los Santos Coy Survey; thence east along the south line on the Santos Coy Survey to the Hardin County line, thence southeast along the Hardin and Liberty County line, following that line to its intersection with Pine Island Bayou; thence easterly along Pine Island to the Southwestern corner of Jasper County; thence north along the western line of Jasper County to the south line of Tyler County; thence due east across Jasper and Newton Counties to the Sabine River; thence southward along the Sabine River to its mouth.

All of that area of territory within a circumscribed circle made by a radius of three miles using the Planters Oil Mill at Hearne, Texas, as a center.

All of the Counties of Maverick, Kinney and Val Verde.

All of the Counties of Presidio and Brewster.

All of the Counties of Ward and Reeves.

Louisiana: An area including a radius of ten miles around each of the following points: Gretna, Eunice, Broussard, Alexandria and Shreveport.

Regulations 4D (a). No restrictions are placed by these regulations on the inter-state movement of articles into the state of South Carolina enumerated in these Regulations from all points outside of the areas now or hereafter designated by the Secretary of Agriculture of the United States as in infested quarantined or regulated areas.

Regulations 5D (a). Whenever any articles or materials enumerated in these regulations are moved from free territory into infested, quarantined or regulated areas that such articles or materials shall then be held as being infested and will not be permitted to move into the state of South Carolina except on permit of the Federal Horticultural Board.

Explanation

The South Carolina State Crop Pest Commission is not only engaged in preventing the spread of destructive pests already within our borders, but the Commission is ever watchful of serious pests likely to threaten our state with invasion. Its regulations are promulgated in cooperation with the people of South Carolina who are partners in the quarantine service. In the operation of its regulations the Commission has always the intelligent, unanimous cooperation of the citizens of this state. Many hundred people representing diverse interests visit this Commission during the year for conferences, and these conferences are always welcomed and given serious and careful consideration. It is needless to explain that the procedure in this pink bollworm situation as it now exists

should be fundamentally governed by the Federal Horticultural Board. The Federal Horticultural Board is a patriotic and efficient guardian spreading its mantle of protection along our coast lines, our international boundaries and around the various states. It appears logical, therefore, that a situation like that which the pink bollworm presents demands that South Carolina give effective co-operation to the Federal Horticultural Board and to be governed in its actions in operating the pink bollworm quarantine by the Regulations promulgated by the Secretary of Agriculture. Those interested are requested to write to the Secretary of Agriculture, Washington, D. C., for a copy of the pink bollworm quarantine

EUROPEAN CORN BORER QUARANTINE

In order to prevent the introduction of the European Corn Borer (*Pyrausta nubilalis*) the importation into the State of South Carolina from all foreign countries, from the States of Pennsylvania, New York, Massachusetts and New Hampshire and from all States in which the European Corn Borer may hereafter be found to exist, of corn and broom corn, including all parts of ear and stalk (shelled grain excepted); rye, oats, wheat and other straw, sedges or rushes, whether used for or intended for packing or otherwise; celery, beans in the pod, beets with tops, spinach and rhubarb; cut flowers and entire plants of Chrysanthemum, astor, cosmos, zinnia or hollyhock. Also cut flowers and entire plants of gladiolus, canna, peony and dahlia and also all herbaceous plants or shrubs with hollow or pithy stems is hereby prohibited.

Report of The State Veterinarian

November 1st, 1920.

Dr. W. M. Riggs, President,
Clemson Agricultural College,
Clemson College, South Carolina.

Dear Sir:

I have the honor of submitting herewith a report of Live Stock Sanitary Control Work, including Tick Eradication, as conducted by Clemson Agricultural College and the Bureau of Animal Industry, U. S. Department of Agriculture, cooperating, in the State of South Carolina, for the period from January 1st, 1920, to October 31st, 1920, inclusive.

The establishment of the Clemson College Live Stock Sanitary Office in Columbia cooperatively with the Bureau of Animal Industry, U. S. Department of Agriculture for the conduct of Live Stock Sanitary Control Work has proven of undoubted value to the Live Stock Industry of the State.

While this office investigates and handles all contagious, infectious and communicable diseases of live stock, the three principal lines of work are: Tick Eradication, Tuberculosis Eradication, and Hog Cholera Control. The functions of these projects will be given under their respective headings.

TICK ERADICATION

This class of work is now confined principally to the counties situated in the coast region, commonly referred to as the Coastal Plain section, viz., Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Hampton, Horry, Jasper, and Williamsburg. In these counties it is the common practice for the cattle owners to permit their live stock to run at large. Owing to this "free range" condition prevailing to a greater or less extent in all the Coastal Plain counties, and the cattle being of a more or less wild nature, it is a very difficult matter to round them up for disinfection. Cattle that are not dipped regularly, and are permitted to stray or drift at will, are a great menace and drawback to the work for they continually reinfest the ranges.

During this year's work we found sections infested that had been free of ticks for two years. The infestation was due to ticky cattle straying over those sections during last fall and winter. Some of the areas that we freed of ticks this year will undoubtedly become reinfested this fall and winter. This will make it necessary to continue the dipping of all cattle in areas where free range conditions prevail, until the last tick has been eradicated.

Despite the unfavorable conditions we encounter conducting the work in the Coastal Plain sections, satisfactory progress has been and is being made. In those counties and areas from which the cattle tick has been completely eradicated, the introduction of pure bred sires and high grades has resulted in a wonderful improvement in the quality of the cattle.

With the advent of the cotton boll weevil the need for "more and better livestock" in the Coastal Plain sections is very apparent, and it is hoped that the cotton owners in the infested areas will take an even greater interest in Tick eradication next season, so that the entire coast region may be made safe for the importation of pure bred sires and in this way make it possible to establish a cattle industry that will be profitable. The fundamental of successful farming is based on good live stock, but this cannot be established until the cattle fever tick is eradicated.

Final work was also conducted in the counties of Aiken, Chesterfield, Clarendon, Edgefield, Fairfield, Florence, Kershaw, and Richland. In these counties a few premises are held under local quarantine until it can be determined that they are absolutely free of ticks. The work is practically completed in most of these counties, however, it will be necessary to make reinspections in some of them next year.

LIVE STOCK SANITARY CONTROL WORK

Tuberculosis Eradication:

This is a very important branch of our live stock sanitary control work, and is being conducted for the eradication of tuberculosis from our live stock and the establishment of Tuberculosis Free Accredited Herds.

During the past year the tuberculin test was applied to 394 herds containing 8123 cattle, 93 of which reacted and were disposed of in accordance with the state laws.

Since the inauguration of this work (November 1917), the tuberculin test has been applied to a total of 775 herds containing 18135 cattle, 379 of which reacted to the test.

At this time there are 45 herds in the state on the Tuberculosis Free Accredited Herd list, and 260 herds that are in the process of accreditation have passed one successful test.

The Accredited Herd Plan is a very important feature of the work. Before a herd can be accredited it must pass two successful tests, in not less than twelve months, under State and Federal supervision, and must be retested each twelve months thereafter in order to remain on the list. It thus is readily seen that it would be much safer to purchase cattle out of accredited herds or herds in process of accreditation, than out of those that are not.

While we have been conducting tests only on request in the past, yet, the principal breeding and dairying herds in the state are under our supervision. It is hoped that the appropriation next year will be sufficient to permit us to conduct an even larger amount of this class of work so that we may take up area work in a block of several counties.

Hog Cholera Control:

Hog cholera is a most serious disease of hogs and is found to a greater or less extent in practically every county in the state, but is more prevalent in the eastern and southern counties, especially in those where they have access to the free range.

During the past the vaccination of hogs, to protect them against cholera, has been done chiefly by the county agents, who were instructed under the supervision of the State Veterinarian's office. The appropriation made by the last General Assembly enabled us to employ a force of veterinarians to relieve the county agents of this class of work, and we have located them in the areas where their services are needed most. At this time we have veterinarians located at the following points: Aiken, Allendale, Bamberg, Ridgeland, Walterboro, Charleston, Georgetown, Lake City, Conway and Columbia.

During the past year hogs have been treated against cholera by the veterinarians of this office, county agents, and laymen working under the supervision of this office as follows:

	Head
Serum alone -----	5,499
Serum and virus -----	38,113
Serum and bacterins -----	214
Serum, virus and bacterins -----	3,953
Bacterins alone -----	2,027
Total -----	49,806

INVESTIGATION OF OTHER DISEASES

In addition to Tuberculosis Eradication and Hog Cholera Control our Veterinarians also investigate and handle other contagious, infectious, and communicable diseases of live stock. During the past year the following diseases, some of which are not contagious or infectious, have been investigated.

Cattle

Cases

Hemorrhagic Septicaemia -----	28
Forage Poisoning -----	9
Necrotic Stomatitis -----	1
Infectious Ophthalmia -----	1
Black Leg -----	19
Pneumonia -----	1
Mycotic Stomatitis -----	2
Parasitism -----	4
Dermatitis -----	1
Enteritis -----	1
Traumatism -----	1
Indigestion -----	2
Infectious Abortion -----	2
Parturient Paresis -----	1

Swine

Cases

Hemorrhagic Septicaemia -----	21
Mixed Infection -----	35
Forage Poisoning -----	6
Necrotic Enteritis -----	1
Necrobacillosis -----	2
Pericarditis -----	1
Parasitism -----	14
Tuberculosis -----	1
Indigestion -----	5
Auto-Intoxication -----	2
Synovitis -----	1
Arthritis -----	1
Laminitis -----	3
Abscess -----	1
Rheumatism -----	2
Enteritis -----	2
Anemia -----	6
Pneumonia -----	6
Peritonitis -----	2
Infectious Abortion -----	1

Horses and Mules

Cases

Forage Poisoning -----	2
Pneumonia -----	1
Gastro-Enteritis -----	1
Azoturia -----	1

Our veterinarians also make investigations and surveys of premises where it is suspected disease exists among live stock, are frequently consulted by live stock owners and give advice as to the best manner for handling live stock problems. Their activities along these lines during the past year are shown as follows:

Consultations -----	1958
Investigations -----	186
Sanitary Surveys -----	89

The Clemson College Live Stock Sanitary Office, in addition to the services of the veterinarians, also disseminates a great amount of information regarding live stock diseases through the distribution of bulletins, pamphlets, etc., and answers numerous inquiries by letter.

Serum, Virus and Biologics Distribution:

One of the most important functions of the Clemson College Live Stock Sanitary Office is the distribution of anti-hog cholera serum, virus, and biologics to the citizens of the state at cost. Our equipment permits us to carry large stocks of these products, and purchasing as we do in the open market we obtain them at the best prices, thus saving the live stock owners of this state thousands of dollars annually.

This office being centrally located enables us to make prompt deliveries to any section of the state. During the past year (November 1st, 1919 to October 31st, 1920) this office has shipped serum, virus and biologics as follows:

	Mils	Value
Anti-hog cholera serum -----	4,157,210	\$44,999.79
Hog cholera virus -----	122,775	2,023.90
Biologics * -----	20,472 (doses)	3,378.05
Syringes, etc. -----		600.30
Total -----		\$51,002.04

* The biologics distributed from this office are used for the prevention of hemorrhagic septicaemia (cattle and swine), mixed infection (swine), black leg (cattle).

TICK ERADICATION**U. S. Bureau of Animal Industry Expenditures**

Month	Salaries	Incidentals	Total
January -----	\$ 1,836.65	\$ 1,008.47	\$ 2,845.12
February -----	1,848.34	878.30	2,726.64
March -----	1,848.34	1,067.46	2,915.80
April -----	1,808.32	1,046.73	2,855.05
May -----	1,808.34	1,160.68	2,969.02
June -----	2,633.34	1,106.31	3,739.65
July -----	2,158.33	958.39	3,116.72
August -----	2,112.09	981.78	3,093.87
September -----	2,126.41	911.89	3,038.30
October -----	2,112.09	945.94	3,058.03
Total -----	\$20,292.25	\$10,065.95	\$30,358.20

Salaries: Expenditures under this heading include salaries of supervising veterinarians, a clerk and cattle inspectors.

Incidentals: Expenditures under this heading include traveling expenses of supervising veterinarians, cattle inspectors and maintenance of office in Columbia, S. C.

Number of U. S. Bureau Men Employed and Designation

Month	Veterinary Inspectors	Cattle Inspectors	Clerk	Total
January -----	4	12	1	17
February -----	4	12	1	17
March -----	4	12	1	17
April -----	3	14	1	18
May -----	3	14	1	18
June -----	3	22	1	26
July -----	3	14	1	18
August -----	3	14	1	18
September -----	3	14	1	18
October -----	3	14	1	18

Supplementary Reports

State Expenditures			
Month	Salaries	Incidentals	Total
January -----	\$ 120.00	\$-----	\$ 120.00
February -----	120.00	-----	120.00
March -----	120.00	810.63	930.63
April -----	2,055.00	32.72	2,087.72
May -----	2,311.00	205.86	2,516.86
June -----	1,646.33	620.41	2,266.74
July -----	2,514.33	531.38	3,045.71
August -----	2,443.66	7.00	2,450.66
September -----	2,235.67	347.37	2,583.04
October -----	2,329.33	73.17	2,402.50
Total -----	\$15,895.32	\$ 2,628.54	\$18,523.86

Salaries: Expenditures under this heading include salaries of cattle inspectors and one clerk.

Incidentals: Expenditures under this heading include chemicals (for preparing arsenical solution to disinfect cattle), utensils and containers for same, printing regulations, quarantine and permit books, disinfection notices, etc.

Number of State Men Employed and Designation

Month	Cattle		Total
	Inspectors	Clerk	
January -----	0	1	1
February -----	0	1	1
March -----	0	1	1
April -----	18	1	19
May -----	20	1	21
June -----	14	1	15
July -----	22	1	23
August -----	20	1	21
September -----	19	1	20
October -----	20	1	21

Force in Tick Eradication Work

(Paid Jointly by State of South Sarolina and U. S. Dept. of Agri.)

Position	Name	Salary
1. Inspector in Charge -----	W. K. Lewis -----	\$3,500 (year)
2. Veterinary Inspector -----	Z. C. Boyd -----	2,160 "
3. Veterinary Inspector -----	Clarke Hedley -----	2,100 "
4. Veterinary Inspector -----	F. S. Hope -----	2,100 "
5. Cattle Inspector -----	S. H. Williams -----	1,800 "
6. Cattle Inspector -----	W. F. Gaillard ---	1,740 "

	Position	Name	Salary
7.	Cattle Inspector	V. E. McCormack	1,620 "
8.	Cattle Inspector	J. D. Limehouse	1,440 "
9.	Cattle Inspector	Wade H. Jones	1,380 "
10.	Cattle Inspector	E. J. Jenkins	1,320 "
11.	Cattle Inspector	W. M. Barnwell	1,080 "
12.	Cattle Inspector	G. S. Cuthbert	1,080 "
13.	Cattle Inspector	J. E. Gillis	1,080 "
14.	Cattle Inspector	W. H. Harrison	1,080 "
15.	Cattle Inspector	J. C. Hoats	1,080 "
16.	Cattle Inspector	M. B. Marvin	1,080 "
17.	Cattle Inspector	A. A. Patterson, Jr	1,080 "
18.	Cattle Inspector	E. E. Wyndham	1,080 "
19.	Clerk	George Smith	1,600 "
20.	Cattle Inspector	J. E. Bailey	120 (month)
21.	Cattle Inspector	G. W. Hill	120 "
22.	Cattle Inspector	A. G. Mitchum	120 "
23.	Cattle Inspector	L. W. Avant	110 "
24.	Cattle Inspector	J. C. Kinsey	110 "
25.	Cattle Inspector	William Bivens	100 "
26.	Cattle Inspector	E. W. Davis	100 "
27.	Cattle Inspector	L. Y. Davis	100 "
28.	Cattle Inspector	W. C. Gay	100 "
29.	Cattle Inspector	J. K. Linder	100 "
30.	Cattle Inspector	Theodore Malphrus	100 "
31.	Cattle Inspector	P. M. Myers	100 "
32.	Cattle Inspector	Bertie Nettles	100 "
33.	Cattle Inspector	J. M. Rowell	100 "
34.	Cattle Inspector	H. N. Sessions	100 "
35.	Cattle Inspector	A. E. Smith	100 "
36.	Cattle Inspector	C. C. Strobel	100 "
37.	Cattle Inspector	F. H. Worthington	100 "
38.	Cattle Inspector	W. C. Hills	100 "
39.	Cattle Inspector	F. M. Johnson	50 "
40.	Cattle Inspector	C. H. Marvin	50 "
41.	Clerk	R. K. Donly	1,600 (year)
42.	Cattle Inspector	J. O. Ackerman	120 (month)
43.	Cattle Inspector	W. T. Rowell	5 (day)
44.	Cattle Inspector	S. C. Johnston	5 "
45.	Cattle Inspector	R. K. Johnston	5 "
46.	Cattle Inspector	H. H. Hill	5 "
47.	Cattle Inspector	J. E. Williams	5 "

The following statement shows the expenditures from various sources from 1907 to November 1, 1920:

Expenditures for Tick Eradication in South Carolina

Year	U. S. Dept. of Agri.	Clemson College	State Appropri'n	County Appropri'n
1907 -----	\$ 5,125.00	\$ 1,860.00	\$ -----	\$ -----
1908 -----	15,207.00	4,535.00	-----	-----
1909 -----	19,367.00	8,524.00	-----	-----
1910 -----	15,915.00	9,960.00	-----	-----
1911 -----	12,674.00	10,051.00	-----	-----
1912 -----	14,537.00	8,308.00	-----	-----
1913 -----	16,146.00	9,369.00	-----	1,083.00
1914 -----	23,143.00	1,497.00	30,000.00	-----
1915 -----	35,479.84	-----	30,000.00	-----
1916 -----	38,598.72	-----	30,000.00	-----
1917 -----	64,811.65	-----	30,000.00	-----
1918 -----	74,102.77	-----	30,000.00	-----
1919 -----	63,947.29	-----	30,000.00	-----
1920 (To Nov. 1)	30,358.20	-----	18,523.86	-----
Total -----	\$429,412.47	\$54,104.00	\$198,523.86	\$1,083.00

LIVE STOCK SANITARY CONTROL WORK

U. S. Bureau of Animal Industry Expenditures

	Salaries	Incidentals	Total
January 1, 1920, to			
October 31, 1920, inclusive --	\$7,717.73	\$3,222.18	\$10,939.91

Salaries: Expenditures under this heading include salaries of four veterinary inspectors and one clerk.

Incidentals: Expenditures under this heading include traveling expenses of veterinary inspectors, office rent, telephone charges, etc.

Number of U. S. Bureau Employees and Designation

Veterinarians	Clerk	Total
4	1	5

State Expenditures

	Salaries	Incidentals	Total
January 1, 1920 to			
October 31, 1920, inclusive --	\$11,942.19	\$5,671.44	\$17,613.63

Salaries: Expenditures under this heading include salaries of twelve veterinarians.

Incidentals: Expenditures under this heading include traveling expenses of veterinarians, office rent, etc.

Force in Live Stock Sanitary Control

Veterinarians ----- 12

Force in Live Stock Sanitary Control

(Paid jointly by State of S. C. and U. S. Dept. of Agri.)

Position	Name	Salary
1. Inspec. in Charge & State Vet.	W. K. Lewis	\$3,500.00
2. Veterinary Inspector	P. J. Gallagher	2,100.00
3. Veterinary Inspector	L. S. Baer	1,800.00
4. Veterinary Inspector	J. R. Ulrich	1,680.00
5. Clerk (Steno. and Typewriter)	Margaret Robertson	1,200.00
6. Assistant State Veterinarian	E. T. Fisher	2,000.00
7. Assistant State Veterinarian	T. A. Jennings	2,000.00
8. Assistant State Veterinarian	Emlen Wood	2,000.00
9. Assistant State Veterinarian	S. M. Witherspoon	1,800.00
10. Assistant State Veterinarian	R. W. Applegate	2,000.00
11. Assistant State Veterinarian	M. L. Boyd	2,000.00
12. Assistant State Veterinarian	H. S. Brundage	2,000.00
13. Assistant State Veterinarian	R. A. Mays	1,800.00
14. Assistant State Veterinarian	L. S. Merritt	1,800.00
15. Assistant State Veterinarian	Fred Speer	1,800.00
16. Assistant State Veterinarian	S. D. Shoulkin	1,800.00
17. Veterinary Inspector	A. H. Logan	2,100.00

The following statement shows expenditures from the year 1918 to October 31, 1920, inclusive:

Year	U. S. Dept. of Agri.	State Appropria'n	Total
1918 -----	\$ 3,243.81*	\$ 1,879.44	\$ 5,123.25
1919 -----	7,418.80*	9,954.50	17,373.30
1920 (to Oct. 31) -----	10,939.91	17,613.63	28,553.54
Total -----	\$21,602.52	\$29,447.57	\$51,050.09

* These amounts do not include the U. S. Department of Agriculture's expenditures in hog cholera work in South Carolina for the year 1918, or the first nine months in 1919, as this office has no record of the expenditures made by the U. S. Department of Agriculture for hog cholera control work in South Carolina prior to October 1, 1919.

HOG CHOLERA CONTROL—REINVESTMENT FUND

W. K. Lewis, Inspector in Charge and State Veterinarian.

Employees	Title	Salary
J. E. Wilson	Clerk	\$1,800.00 per annum
J. M. Leaphart	Clerk	1,200.00 per annum

(The salaries of these employees are included in the cost of distributing serum, virus and biologics).

Respectfully submitted,

W. K. LEWIS,

Inspector in Charge and State Veterinarian.

FINDINGS OF THE BOARD OF TRUSTEES AFTER INVESTIGATION OF AFFAIR OF MARCH 10th, 1920.

Clemson College, S. C., March 15, 1920.

After a thorough investigation, in which representatives of the Senior and Junior Classes, such parents of Freshmen and Sophomore classes as presented themselves, members of the Discipline Committee, and all others who desired the opportunity, were heard, the representatives of the upper classes being heard both in open and in executive session of the Board, thus allowing them the fullest freedom from restraint in the expression of complaints and of opinions touching the situation, the Board finds the following facts:

1. On Sunday, March 7th, Cadet Hoffmeyer, head-waiter, and one of the dining room scholarship cadets, reported to the Commandant of the Corps, Colonel Cummins, that principally on account of the prevalence of influenza and mumps in the student body, the close approach of examinations, and the utter inability to procure outside labor, it was found that a number of tables were without waiters. The Commandant, recognizing the emergency, issued an order, with the full knowledge of the President of the College, (Sec. 1, Cadet Regulations), detailing six cadets each day to supplement the cadet waiter-force in the messhall, the order explicitly stating that it was issued to meet an emergency.

The scholarship waiter-cadets were paid twenty dollars per month for about four hours work per day. But the cadets affected by the emergency order were to do only dining-room service; that is, carrying food from the kitchen to the tables, and requiring not over fifteen minutes of extra time before each meal, and a small amount of service during the meal, and for which similar service the regular dining-room waiters were receiving six dollars per month.

The Board is convinced that this order carried no purpose to adopt a policy requiring of the cadets the performance of menial labor, but was issued to meet an emergency likely to arise in any institution of this size.

2. No complaint as to this order was brought to the attention of the authorities until Monday morning after breakfast, at which meal two of the cadets detailed were reported as failing to appear for duty, in violation of the order, whereupon the Commandant placed them in arrest, pending an investigation and possible charges.

Early Monday morning, the President of the College was waited

upon by the Senior Class Cooperative Committee and by the Sophomore Class Cooperative Committee, and acquainted with the fact that the cadets resented the order. (Sec. 323 Regulations.) The President, in keeping with the college policy to avoid detailing students to do any labor other than college work where paid labor could be obtained, held a conference with the Commandant for the purpose of adjusting the matter to the satisfaction of the students and the necessity of the emergency.

To that end, all former cadet waiters and dining-room scholarship cadets in the college were summoned. About forty responded. Upon the raising of the pay of scholarship waiters to thirty dollars per month and dining-room waiters to nine dollars per month, enough cadet waiters were obtained for the work to relieve the emergency, and at the dinner hour on Monday, the emergency order was revoked, thus leaving it in force only twenty-four hours.

The two violators of the emergency order under arrest were released on Monday at 4:43 P. M., without punishment, the ends of discipline having in the opinion of the authorities been met.

3. Prior to the release of the two cadets above mentioned, the Commandant early in the afternoon had detected a great number of cadets wearing red badges and yelling "Bolsheviki". The only cadet he was able to identify was Cadet Crosland, who was promptly put under arrest for violation of the Regulations governing the cadet corps. Copies of these Regulations are available to every cadet, each of whom is required to know their contents.

Sometime before the issuance of the emergency order, Cadets Green and Dawes were being held in arrest for offenses entirely apart from the emergency order or the occurrences growing out of its issuance. These cadets, Green and Dawes, were found to have broken arrest, in violation of Paragraph 291, Cadet Regulations, and were preparing to leave college. During this time there was great disorder about the guard-room, and the Commandant ordered all cadets to their rooms. This order was obeyed. Later, Cadets Green and Dawes reported to the Commandant that they had been persuaded by their classmates to remain at college. They were placed in close arrest for violation of one of the most important of the college Regulations, for a cadet in arrest is bound by his honor under the Regulations to observe it, and it cannot be breached as was done by these two cadets, except by a breach of the Regulation, and the honor obligation to observe it.

These three, Cadets Green, Dawes and Crosland, were tried in the usual way by the Discipline Committee of the college on Tuesday night, the former two pleading guilty to the charge against them and being dismissed therefor, while the last, Crosland, was acquitted of the charge of disrespect upon his statement that he did

not see the Commandant, but was found guilty of being a party to disorder on the campus.

4. On Wednesday, March 10th, immediately after dinner, the Freshman and Sophomore classes met on Riggs Athletic Field, in violation of Paragraph 246, Cadet Regulations, and from there proceeded to the entrance of the main building. The President of the college, Dr. Riggs, was called upon to appear before these classes, and through their spokesman, Cadet Turner of the Freshman Class, it was demanded of him that he immediately reinstate Cadets Green and Dawes, and relieve Cadet Crosland from further punishment. President Riggs explained to these classes that neither he, the Discipline Committee, the Faculty, nor any other authority at the college was empowered either to entertain a request coming in such a manner, nor to act upon it. (Sec. 324, Cadet Regulations). Paragraph 324 above referred to reads as follows:

"The President, the Discipline Committee and the Board of Trustees shall not consider any petition or protest, verbal or written, from any class or other student organization, relating to the punishment of any cadet by the proper authorities, and any such petition or protest is strictly prohibited. Only petitions or protests from a parent, legal guardian, or a cadet of age shall be given consideration by the President, Discipline Committee or Board of Trustees."

The President referred to this Regulation, stating clearly to them that the Regulations positively prohibited any of the college authorities from considering any petition or protest from a class or student organization relating to the punishment of a cadet; but pointed out to them that the Regulation provides that such protest must be presented to the proper authorities of the college only by the cadet himself, his parent or legal guardian. The mere reading of the above section of the Regulation shows that there are no restrictions upon the pursuance of this course by any cadet affected, and the law of the Board requires the President to submit all such protests or requests to the Board, or proper committees thereof.

Upon the conclusion of this statement the two classes without disorder, and apparently following a preconcerted plan, and in clear violation of the Regulation against desertion (Sec. 325 Regulations) disbanded, and later quit college and left for their homes, except about ninety, who were granted leaves of absence under a policy agreed upon by the authorities to grant such leave to any cadet who claimed he was having to leave under compulsion.

These are the facts leading up to and including the departure of the Freshman and Sophomore Classes from the college, and it must be emphasized that they show clearly that the events of Wednesday were not due to the issuance of the emergency order of Sunday, which had been revoked on Monday noon.

5. Following the departure of the Freshman and Sophomore Classes, the Junior and Senior Classes held meetings, and through their Committees also conferred with the President of the college. Later these classes submitted in the regular way to the President of the college for his transmittal to the Board of Trustees, as required by Sec. 61 of the college By-laws, what purported to be a petition covering their "Grievances". Among other demands made upon the Board is the following:

1. "Reinstatement of Freshman, Sophomore, Two Year Textile and One Year Agricultural Classes, along with Cadet Crosland of the Freshman Class,—all without punishment."

This as a petition and not as a demand would have been a proper exercise of their rights, but the real character of the document is disclosed by the distinct ultimatum to the Board as follows:

"We, the undersigned, hereby petition the Board of Trustees that the above named requests be granted immediately; also that if the requests are not granted we will not return to Clemson College at the expiration of the present leave of absence."

A leave of absence until March 21st having been granted the Junior and Senior Classmen by the authorities, the Board found upon reaching Clemson that three cadets representing the Junior and Senior Classes, had been duly requested by their classmates to remain at the college to present their demands to the Board of Trustees. These representatives of the classes appeared before the Board of Trustees Saturday afternoon.

When their attention was called to the fact that the language last quoted had been stricken from the original document signed by the members of the two classes before leaving for home, they stated that they had eliminated it since the departure of the classes, and when pressed for their authority for so doing, the Board was not convinced that such explicit authority existed in them, and that they were uncertain as to what their individual positions would be with reference to the findings of the Board, and could give no assurance whatever as to the position of their classmates. So that the Board must feel that the only document before it actually from the members of these two classes is in the form of an absolute ultimatum, which the Board refuses to consider.

While it is true that the military features of Clemson College require only three hours of military drill per week, made necessary to meet the requirements of the Federal statutes and the curriculum of the college, yet in all disciplinary essentials it is a military institution, governed and regulated under military discipline, in which obedience to constituted authority is always the most important element. All of this was known not only to the entire cadet corps

upon entrance into the college, but as well to, their parents and guardians, just as it was known that Clemson College was founded and has been nurtured as an institution where the dignity of labor is duly appreciated.

The Board desires in this connection to emphasize that it neither appreciates nor approves the feeling apparent in the corps of cadets that depreciates or considers disgraceful what is called "menial labor". We realize that a boy does not come here primarily to do such labor, but it must be remembered that the prime object of this institution is to train the youth of the State for service and in the accomplishment of this end, we would in no way be understood to disregard or minimize the importance of a recognition and approval of and a participation in, whenever necessary, or in an emergency, any kind of honest labor in giving that training. The proper attitude of men towards work, and towards those who perform it, is an essential factor in their success or failure, and the policy of this institution has always been, and will continue to be, one where the highest regard for labor, (menial as well as intellectual), and for those who perform one as well as the other, is considered essential in the make-up of a man.

The Board of Trustees, with the maturest deliberation, and the fullest understanding of, and sympathy for, the weaknesses of young men acting under the stress of excitement and impulse, have reached the unanimous conclusion that the action of the Freshman and Sophomore Classes, followed by the ultimatum of the Junior and Senior Classes, is not justified by any condition existing at Clemson College.

The situation with respect to the messhall is not all that the Board could desire, but we find that this condition is not due to mismanagement, lack of interest, or lack of intelligent supervision, but is the result of prevailing conditions throughout the country, involving inadequate transportation, a shortage of skilled labor, (in fact a dearth of any kind of hired labor in this instance), and an inadequacy of funds due to the constantly increasing rise in the cost of food stuffs and labor. Such a condition as this, however, does not justify in the judgment of the Board, the spirit of extreme disobedience and impatience displayed by the Cadet Corps.

The Board recognizes the necessity for a satisfactory mess, and has authorized the President, and has provided him with funds, to bring this about, without the necessity of raising the monthly rate of board to the cadets; because to do this at a time near the end of a session might have the appearance of disregarding an agreement with the parents when their sons entered the college.

The Board's investigation into the method of trial of cadets by the Discipline Committee does not disclose a miscarriage of justice, but on the contrary shows that the cadet trials have been conducted in a spirit of fairness and sympathy, and that the conclusions, together with the punishments, have been reached and adjudged upon the same basis. That such has been the case is evidenced by the fact that since the beginning of this session in September, out of a cadet corps numbering more than 800 men, there have been only seven dismissals and six suspensions. The Board believes the trial system to be fair, and to have been administered fairly. But in view of the unanimous recommendation of the Discipline Committee itself, and the President of the college, and to allay the natural suspicion attaching to closed trials, and to give greater confidence in the findings of the Discipline Committee, the Board has deemed it in the interest of the college to take appropriate action that hereafter trials shall be open to the public, and that the accused shall be given the privilege of selecting counsel from the Faculty.

While strict discipline is necessary to control adequately so large a body of young men, the persistent rumors that are afloat in the State, to the effect that the discipline is harsh and unjust, and that efforts are being made to emphasize more and more the military features of this institution, are disproved by the following facts. During the term which is coming to an end, up to February 28, 210 cadets, or more than 25% of the corps, have received no demerits; 518 cadets, or 71% of the corps, have received less than 20 demerits, which entitles them to a place on the honor roll for the term, so far as discipline is concerned. Only two cadets during the entire current collegiate year have received the limit of demerits for which dismissal or suspension are the penalties.

Notwithstanding these facts, however, the Board feels that it is wise fully to review the existing Cadet Regulations heretofore promulgated by the Board, which have not been materially changed for many years, and to that end a sub-committee of the Board has been appointed, including several alumni who have lived in the barracks, with direction to report back to the Board at its regular spring meeting, April 7th.

The Board has found the Commandant and President Riggs, those immediately responsible for discipline, to have been diligent and fair in their enforcement of the existing Regulations. The Board is in full harmony with their administration of the affairs of the college, and gives assurance to them of fullest support.

The action of the cadets in view of the conditions found to exist is inexcusable. Explanations of it must be left to speculation; and while speculation is always dangerous, it is the belief of the Board

that it has grown either out of the spirit of unrest prevailing throughout the world and is another symptom of the world-wide protest both against the established order of things and of all regularly constituted authority; or is the result of dangerous and unwise advice and leadership, which has magnified small things into aggravated grievances; and it is the belief of the Board, and certainly it must be its hope, that the real cause is to be found in the latter rather than in the former alternative.

This Board can no more excuse the acceptance of foolish and unwise leadership than it can look with complacency upon a spirit of sullen disregard for the constituted authorities of this institution. The very life of Clemson College is dependent upon the obedience of its cadet corps to its rules and regulations governing their conduct. A breakdown in discipline in this institution would be as fatal to it as the break of a rail to a passenger train, and this Board, acting for the preservation of the future of this institution, cannot under such circumstances admit of the justice of the conduct of members of the cadet corps in their precipitous action of last Wednesday, nor will they regard any such member of the corps as being in position to discuss his case until such cadet has purged himself to the satisfaction of this Board of his apparent intention to deliberately and wilfully disobey, violate and contemptuously disregard its rules and regulations.

The Board fully recognizes its responsibility in the premise, both to the institution and to these young men, who spurred on by unwise counsel, have jeopardized their opportunity for an education. The Board likewise has the deepest feeling of sympathy for the parents, guardians and friends of these young men, and is unwilling by any appearance of obstinacy, to deny to these cadets who will put themselves in proper attitude, an opportunity to convince the Board or its delegated agents, of their willingness to subscribe freely and without compulsion to the pledges of loyalty and obedience to the laws and constituted authorities of this institution, and to accept all such other conditions as are herein prescribed.

To that end, as a condition precedent, the Board will require of each individual of the Senior and Junior Classes who signed the petition, or more properly, ultimatum heretofore referred to, to sign and file with the President of the College for the Board of Trustees by 11:30 P. M., March 21st, unless excused by the President, a written withdrawal of their approval of the last paragraph of the document signed by them and filed with the Board of Trustees. Such members of these classes as have failed or refused to file with the President of the College for the Board the statement herein required, in the time required, unless in the opinion of the President unavoidably detained, shall be deemed to be in a state of insubordination, and shall be dropped from the rolls of the college with-

out the privilege of reinstatement at any time in the future; and such of these classes who do not return in accordance with the terms of their present leave without sufficient excuse in opinion of the President of the college, shall be adjudged deserters, and dropped from the rolls of the college as such.

Such members of the Freshman and Sophomore Classes who do not return by 11:30 P. M., March 21, 1920, shall be adjudged to have violated Paragraph 325, Cadet Regulations, and their names shall be dropped from the rolls of the college.

When these conditions are met, those students falling within the classes herein described will be required to subscribe anew to the pledge given by them upon their former entrance into the college to obey and abide by its rules and regulations and to make up all work missed.

If these conditions of re-entrance into the college appear to the public or to the student body as unduly harsh, the Board would have each to understand that this institution in the future as in the past, must be run, and will be run by its legally constituted authorities, and with the full appreciation of the significance of the statement, that this Board would prefer to close the doors of this institution forever than it should be conducted other than by its constituted authorities.

The case of the Freshman and Sophomore Classes presents difficulties not met in the consideration of the case of the upper classes. The Board is convinced that these classes acted without that due consideration of the effect of their course as would be expected of more mature persons, and largely under influence arising outside of their own membership. It is felt that they allowed themselves unconsciously to be used by others for the attainment of purposes which they themselves did not fully understand, or whose consequence they did not fully appreciate.

This feeling induces the Board to conclude that members of the Freshman and Sophomore Classes will be received into the college, who return by eleven-thirty o'clock P. M., March 21, 1920, unless in the opinion of the President, unavoidably detained, and who shall with the written approval of their parents or guardians, subscribe to an affirmation distinctly and positively renouncing any deliberate intent to defy the college authorities, or to rebel against its rules and regulations by his conduct of March 10, 1920, or who shall affirm that his actions of that date were under compulsion or coercion of his fellow classmen or others.

None of these requirements herein contained apply to cadets of the Freshman and Sophomore Classes on leave of absence, who present upon their return the passes or permits under the authority of which they are now absent.

(Signed) ALAN JOHNSTONE,
President, Board of Trustees.

FINDINGS OF BOARD OF TRUSTEES IN INVESTIGATION

Requested by President Riggs and Commandant Cummins

April 8th-9th, 1920.

The board of Trustees of Clemson College met in regular session on Wednesday, April 7, 1920, at 3:00 P. M. The requests for full investigation of their official conduct filed with the Board by President W. M. Riggs and Commandant J. M. Cummins, were considered. The Board decided that justice to all concerned necessitated the investigation sought by them, and during the afternoon of the 7th, gave notice that a public hearing would begin at 3:00 P. M. April 8th, in the chapel of the college.

This notice invited the filing with the Board of any specific charges or complaints against these officials or respecting the conduct of the affairs of the college, and in pursuance thereto the Board had filed with it the following charges and complaints:

That:

1st. Conditions in the messhall and food provided were uncleanly, unwholesome, and protest to the authorities made and repeated during the scholastic year brought no relief prior to the trouble in March. (Specifications omitted.)

2nd. The student body lacks confidence in or reliance upon the statement of the President.

(a) Dr. Riggs told the Senior Cooperative Committee that he knew of the detailing of men for work in messhall. He heard the Commandant and Cadet Hoffmeyer discussing scarcity of labor, etc., and that they discussed the order detailing men.

(b) To the Freshman Cooperative Committee. Dr. Riggs told the Committee that he did not know of the order detailing men for work in messhall.

(c) The Senior Cooperative Committee went in to see Dr. Riggs relative to conditions in messhall and their remedy. He promised to look into the matter at once, and no results prior to about ten days before the trouble in March.

(d) On one occasion Dr. Riggs visited the messhall at the invitation of the Senior Cooperative Committee for supper. On this occasion the meal served was the best within the knowledge of any cadet present. This may be merely a coincidence; that such was the case was a very peculiar one.

3rd. We believe discipline has been unnecessarily harsh and unjustly administered on several occasions. (Specifications omitted.)

4th. Hospital facilities are very unsatisfactory and inadequate.

5th. Facilities for fire protection and fire escapes are unsafe and inadequate.

The above charges were signed by members of the four class committees.

The public hearings were conducted in the Chapel in the presence of the cadet corps, a committee of parents, members of the Faculty, and other persons; beginning at 3:00 P. M., April 8th, and continuing until after midnight on April 9th. Every opportunity was afforded to any person desirous of offering charges and complaints or evidence in support thereof. A number of persons appeared who were examined under oath relative to the matters under investigation.

The Board finds with respect to the complaints concerning the messhall that practically all of them related to conditions existing prior to March 7th, 1920, and some of them during the session ending in June of last year, and this phase of the situation, it is thought, is adequately covered in the report of this Board of March 15th. The evidence was ample that President Riggs had made repeated efforts to improve these conditions. The conditions with respect to the quantity, quality and preparation of the food served, and the sanitary conditions surrounding the messhall generally, are now reasonably satisfactory. This improvement, so gratifying to all concerned, is the result largely of the greater expenditure for messhall purposes, authorized by the Board at its last meeting. The increase in expenditure for this purpose amounts to about \$6.00 per month extra for each student.

The Board, realizing the importance of it, went most thoroughly into the charge that President Riggs had made certain contradictory statements to representatives of the several classes.

The main allegation upon which this charge of a lack of confidence in or reliance upon the statement of President Riggs, was predicated upon the allegation that President Riggs had told the Senior Cooperative Committee that "he knew of the detailing of the men for work in messhall. He heard the Commandant and Cadet Hoffmeyer discussing scarcity of labor, etc., and that they discussed the order detailing men," and he told the Freshman Cooperative Committee that "he did not know of the order detailing men for work in messhall."

Upon this point members of the Senior, Sophomore and Freshman Committees appeared before the Board of Trustees and presented in full their recollection of what was said at the interviews between them and President Riggs on the Monday of the disturbance. The statement of Dr. Riggs to the effect that the order detailing men in the messhall was issued with his knowledge was made first to the Senior Committee early on Monday morning. The same day, about noon, he made the same statement in the presence of the Commandant to about forty men with whom they conferred, with reference to employment in the messhall. On Tuesday night

he made the same statement to the Discipline Committee. On Wednesday night, he, with the approval of the Discipline Committee, incorporated the same statement in the paper given to the public press. On Thursday he made the same statement in the letter sent to every patron of the college. In addition, a former member of the Sophomore Committee not now in college in his testimony differed from the other two members of that Committee. As he recalled it, the statement made by Dr. Riggs to his committee was the same as that made to the Senior Committee and the other bodies above set out.

All of these facts were clearly brought out in the evidence and absolutely no motive for making contradictory statements was shown. Members of the Faculty with long service in connection with the college testified to their relationship, official and personal, with Dr. Riggs, and testified emphatically to his veracity, integrity and high character.

President Riggs in a comprehensive, fair and courageous statement, reviewed his relationship with the corps of cadets and the circumstances surrounding the interviews out of which grew the misunderstanding of his statement.

This misunderstanding between Dr. Riggs and the representatives of the Freshman and Sophomore classes is not to be wondered at when the tenseness of feeling surrounding the interviews of March 8th is remembered. It is not the first time that men have misunderstood each other, nor will it be the last. The Board believes and adopts the theory of President Riggs himself made at the hearing, and found in his testimony as follows:

"My own theory is that these young men, whether through my mistake of their questions, or their mistake of my answers, got mixed in the matter of my **approval** of this order, or my **seeing** this order, with my **not knowing** of this order. That is the only theory upon which I can explain it.

* * * * *

"The reputation of this student body is as dear to me as it can be to any living soul. I would not wish at this time to have you think that the young men of this corps would attempt, directly or indirectly, deliberately to deceive you. I ask you to accept their statements of the conference with the same sincerity that you accept my recollections to the contrary."

It was apparent to the Board that this statement of the President's attitude, a part of which is above quoted, produced not only on the Board, but upon others, a profound impression, and that from it and other testimony adduced at the hearing, a better understanding immediately arose.

Specification (c) is disposed of heretofore in the discussion on messhall conditions.

In regard to specification (d), containing the suspicion that the President attended a supper especially prepared for his coming, the evidence showed conclusively that the invitation to attend this supper was issued by the Senior Cooperative Committee itself within fifteen minutes of the time the supper was to be served. The testimony of all officers connected with the messhall entirely refuted any idea that any special preparations had been made in the expectation of visitors. Absolutely no evidence was introduced to sustain or justify the corps' suspicion that the supper was especially planned for the visit of the President, except that it was a better supper than usual.

The Board expresses its very fullest confidence in the veracity, integrity and loyalty of President Riggs, both to the college and its students, and deems it unnecessary to express an opinion touching his extraordinary efficiency, so well known to the people of the State.

While it seems from the testimony adduced at this hearing that the suspicions regarding the President's actions were a contributing factor in the recent going out of the Sophomore and Freshman classes, that fact was known neither by the Board nor the President, nor brought to their attention when it held its meetings on March 13th at the call of President Riggs. At that meeting the Board considered every charge or grievance which students, parents, or others brought forward. No charge or lack of confidence in the authorities was included.

The testimony offered to support the charge that discipline had been administered harshly or unjustly does not sustain it. The character, veracity, and efficiency of the Commandant, Colonel Cummins was not even brought into question. The Board allowed any cadet to offer complaints or testimony against Colonel Cummins or his assistants. Five cadets out of the corps of nearly eight hundred, offered complaints, and their testimony, but it is the belief of the Board that every one who heard their evidence was convinced, as the Board was, that these complaints were not sustained.

As to the hospital facilities being inadequate and unsatisfactory, the Board desires to state that in 1915 an appropriation of \$25,000 was voted by the Board to erect a modern and thoroughly adequate hospital. On account of the war and the reduction in the funds of the institution amounting to fifty percent. of the fertilizer tag tax, the rising cost of material and labor, and the necessity for economy, it has been impossible to begin the work of building the hospital, although the bricks were bought and have been on the ground since that time.

With regard to the complaint that more fire escapes are needed on the barracks, the Board, from its investigation of this matter, feels no apprehension whatever from the menace of fire to the cadet corps, because the means of escape, including stairways and fire escape equipment, are entirely adequate.

Last and finally, the Board hopes that its investigation will result in a better understanding on the part of the student body, the parents and the authorities of the college, in their relationship one with the other. Also, the future of this institution, and its usefulness to the young manhood of the State depend upon the maintenance of discipline in the cadet corps, and to this end we would ask the sympathetic support of its patrons and friends.

Respectfully,

(Signed) ALAN JOHNSTONE,

Chairman Board of Trustees.